GOVDOC
BRA
4651

BOSTON PUBLIC LIBRARY
3 9999 06585 350 7

JUL 1 1981

THE SOUTHWEST CORRIDOR STUDY AREA
DEVELOPMENT PROSPECTS

Superseded by M42 G3

M42
G1

ROBERT GLADSTONE
AND ASSOCIATES
ECONOMIC CONSULTANTS

Superseded by M42 G3

THE SOUTHWEST CORRIDOR STUDY AREA
DEVELOPMENT PROSPECTS

Prepared for

The Southwest Corridor Study Committee
under agreement with
Boston Redevelopment Authority

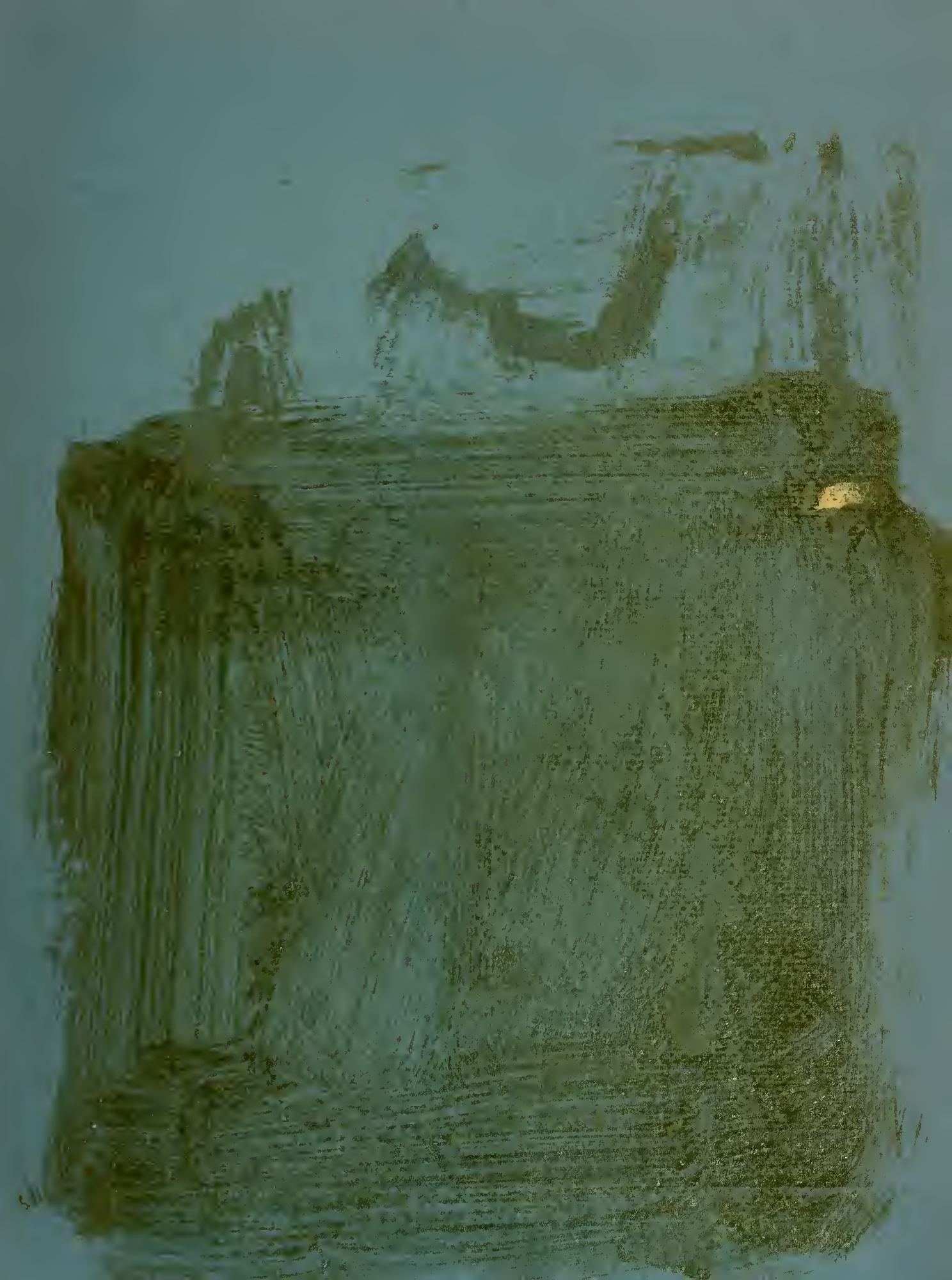
March, 1969

By

Robert Gladstone & Associates
Economic Consultants
Washington, D. C.

Digitized by the Internet Archive
in 2011 with funding from
Boston Public Library

http://www.archive.org/details/southwestcorrido69glad



CONTENTS

		Page
I	Summary of Findings	1
II	Study Objectives	9
III	Method of Analysis	11
IV	Study Framework	14
	Population and Employment Estimates	14
	Situation A	15
	Situation B	16
	Situation C	18
	Probability Estimates	19
	Program Effectiveness	20
	Development Factor Analysis	24
	Elevated & Depressed Designs	28
V	Results	29
	Study Area Prospects	33
	Elevated & Depressed Projections	33
	Land Use Projections	38
	Reference List for Development Factors	45
VI	Appendix: Background Materials	A-1

List of Tables	Title	Page
Table 1	Family Displacement and Projected Replacement Through 1972, Southwest Corridor Study Area	17
Table 2	Probability Estimates, Three Projections, Southwest Corridor Study Area	20
Table 3	Study Area Population, Program Effectiveness Indexes	21
Table 4	Study Area Employment, Program Effectiveness Indexes	22
Table 5	Comparison of Depressed and Elevated Design Development Factors	25
Table 6	Probability Estimtes, Elevated and Depressed Corridor Design	28
Table 7	Estimated Changes in Land Use and Population - Employment Projections for 1972, 1975, 1980 and 1990, Southwest Corridor Study Area, Boston	31
Table 8	Population and Employment Estimates for Elevated and Depressed Designs, Southwest Corridor Study Area	34
Table 9	Situation A, Depressed: Population, Employment and Land Use Projections Depressed Expressway and Transit Line, Southwest Corridor Study Area, 1968, 1972, 1975, 1980 and 1990	39
Table 10	Situation A, Elevated: Population, Employment and Land Use Projections Elevated Expressway and Transit Line, Southwest Corridor Study Area, 1968, 1972, 1975, 1980 and 1990	40
Table 11	Situation B, Elevated: Population, Employment and Land Use Projections for Elevated Expressway and Transit Line, Southwest Corridor Study Area, 1968, 1972, 1975, 1980 and 1990	41

List of Tables (continued)

	Title	Page
Table 12	Situation B, Depressed: Population, Employment and Land Use Projections, Depressed Expressway and Transit Line, Southwest Corridor Study Area, 1968, 1972, 1975, 1980 and 1990	42
Table 13	Situation C, Elevated: Population, Employment and Land Use Projections, Elevated Expressway and Transit Line, Southwest Corridor Study Area, 1968, 1972, 1975, 1980 and 1990	43
Table 14	Situation C, Depressed: Population, Employment and Land Use Projections, Depressed Expressway and Transit Line, Southwest Corridor Study Area, 1968, 1972, 1975, 1980 and 1990	44

List of Maps and Graphs

Map 1	Southwest Boston Region Base Map	10
Graph 1	Population Projections Depressed and Elevated Designs	36
Graph 2	Employment Projections for Depressed and Elevated Designs	37

Appendix
(Background Material)

List of Maps

	Title	Page
Map 2	Southwest Study Area Base Map	A-2
Map 3	Program Areas in Southwest Study Area	A-3
Map 4	Traffic Zones in Southwest Study Area	A-4
Map 5	Census Tracts in Southwest Study Area	A-5

List of Tables

Table Nr.		
I-1	Population for Boston Metro and City, 1960-1967	A-6
I-2	Employment for Boston, SMSA 1960-1967 by Major Industries	A-7
I-3	Employees by Residence & Industry in the Study Area (Census Tract and the City of Boston, 1960)	A-8
I-4	Employees by Residence and Industry in the Study Area (Census Tract) of the City of Boston, 1960	A-9
I-5	Employment by Industry for the City of Boston	A-10
I-6	Employment by Industry in the Primary and Secondary Sub-Areas of the Study Area, 1963	A-11
I-7	Number Employed and Number of Establishments Southwest Corridor Study Area, 1968	A-12
I-8	Family Income Distribution for Census Tracts in the Study Area and for the City of Boston, 1960	A-13
I-9	Population in the Primary and Secondary Sub-Areas of the Study Area, 1963	A-14
I-10	Characteristics of Families in Right-of-way Southwest Corridor Project, 1968	A-15
I-11	Commercial Centers in the Southwest Corridor Study Area	A-16
I-12	Commercial Centers by Type of Store, Southwest Corridor Study Area	A-17
I-13	Commercial and Industrial Establishments in the Study Area Right-of-Way, 1963	A-18

Table Nr.	Title	Page
I-14	Commercial & Industrial Establishments in Right-of-Way of Southwest Corridor Study Area by Location, 1963	A-19, A-20
I-15	Dwelling Units by Type for the Study Area, 1968	A-21
I-16	Age of Residential Structures in Census Tracts of Study Area	A-22
I-17	Condition of Houses in Census Tract of Study Area, 1960	A-23
I-18	Existing and Proposed Public Housing in and Near the Southwest Corridor Study Area, 1968	A-24
I-19	Middle Income Housing (221 D-3) Existing & Proposed in and Near the Southwest Corridor Study Area, 1968	A-25
I-20	"Infill" Housing to be Constructed in 1969 in the Southwest Corridor Study Area	A-26
I-21	Programmed Public Facilities in the Southwest Corridor Study Area	A-27
I-22	Existing Public Facilities in the Southwest Corridor Study Area	A-28, A-29

THE SOUTHWEST CORRIDOR STUDY AREA
DEVELOPMENT PROSPECTS

THE SOUTHWEST CORRIDOR STUDY AREA
DEVELOPMENT PROSPECTS

The Southwest Corridor Study Area as defined for purposes of this study lies south of downtown Boston. (see Map 1) It is a one by three mile rectangle centered on the NY-NH&H Railroad right-of-way, roughly bounded on the north by Ruggles Street and on the south by Walk Hill Street. Portions of the community of Jamaica Plain lie within the study area as does a small residential area south of the arborway between the Arboretum and Forest Hills Cemetery. A portion of the Parker Hill area and Roxbury just north of Jamaica Plain also fall within the study area.

The study area is mixed in use patterns, ranging from predominantly single family residential on the south to mixed commercial-residential on the north with a large metropolitan shopping center -- Dudley Station -- located in the northeast section of the study area. Numerous industries are located along the railroad right-of-way which bisects the area.

I. Summary of Findings

1. The primary purpose of this study was to determine the potential demand for various types of residential, commercial and industrial development for both elevated and depressed designs in the transportation corridor -- programmed to include transit and freeway facilities. The framework for the analysis included projection of study area potentials in five year and ten year increments from the present through 1990. The depressed and elevated design effects on these potentials were then estimated. Finally, these potentials were expressed in marketability terms for land

use. The report contains a quantative basis for establishing rational dimensions to land use demand in the study area.

2. The process used in our analysis included the following: an analysis of area wide trends for the metropolitan area, the city and the study area; a review of the existing programs that are operating in the study area and an analysis of their impact; the influence of the transportation corridor on the area; and the relative importance of the transportation corridor cross section design as one aspect of a program affecting the study area.

   a. Recent population and employment trends for the metropolitan area have differed from the city and the study area.

      i. The metropolitan population has grown at a 0.6% rate between 1960 and 1968. The employment growth rate for this same period equaled 2.0% per year.

      ii. Between 1960 and 1967 population in the city of Boston declined an average of 1.5% yearly. Between 1960 and 1963 employment in the city declined 2.2% per year. However, recent activity in the central business district of Boston has diminished this rate of decline.

      iii. The population in the study area has declined at the rate of 500 per year between 1963 and 1968 -- about 0.6% per year. The estimated population in 1968 in the study area totaled 80,000. Between 1963 and 1968, employment declined an average of 1% a year from 20,000 to its current level estimated at 19,000.

b. The future of the Southwest Corridor Study Area will be affected dramatically by the level and effectiveness of various public programs operating in the area. These cover model cities; anti-poverty; educational facilities and programs; urban renewal; housing code enforcement; housing, both public and special assistance; recreation facilities and programs; health services; other municipal services; and the transportation system as well. The transportation system is but one program operating in conjunction with many others affecting the study area. The design of the corridor is in turn, only one factor in the transportation system.

i. The future population level of the study area will be affected by each of the programs mentioned above.

ii. The future employment in the study area will be affected most directly by model cities, anti-poverty, urban renewal and transportation programs.

iii. The public programs act as a system. Accordingly, if one program functions well or poorly, the level and effectiveness of other programs tends to perform relatively well or poorly on a parallel basis.

c. The projected transportation corridor would permit easier access into and out of the study area for individuals as well as for movement of industrial and commercial goods. The study area as a result could more easily participate in the economy of the larger metropolitan community.

d. The design of the transportation corridor will influence future development in the study area. Analysis of key development factors show that population

growth is responsive to design considerations and employment growth, while responsive, is less so. Key design decisions for the transportation corridor including choice of elevated and depressed sections, type of structure, width of right-of-way, joint development patterns and similar factors would control the effect of the transportation system on land use and development. A "poorly" planned corridor could be expected to have an injurious effect on the study area; while a "well-designed" corridor would positively influence its potentials. In overall terms, the tendency would be for depressed facilities to be more closely associated with increases in population and economic activity as compared to elevated designs; and conversely, there is a greater liklihood for an elevated design to be associated with declining area population.

3. The output of the process described above specifically includes population and employment projections with estimates of probability associated with each projection; the importance of transit system design for the future of the study area; and the effects of an elevated and depressed design on the probability estimates for the future of the study area.

a. Three population and employment projections were made for the study area. Basic to these projections were the likely persistance of past trends in the study area; the possibility of the study area sharing more fully in the growth of the metropolitan area; and especially the level and effectiveness of public programs operating in the study area. The presence of a new transportation corridor by 1972 is assumed in each of these projections.

i. Situation A - This situation projects population decline through 1980 at the same rate that the study area has

experienced in the recent past. Between 1980 and 1990, the decline can be expected to "bottom out" and has therefore been reduced. The employment projection in this case can be expected to continue at the present 19,000 level through 1990 with no further gain. This stable job total is influenced by the presence of the new transportation corridor projected which will improve access to the area. It is projected here, however that future population and employment potentials for the area will be depressed by low program levels and effectiveness. This situation thus portrays a stagnant future for the study area.

ii. Situation B - The population and employment projections for this case are based on more full participation by the study area in metropolitan area growth patterns. Population is projected to reverse past declines and stabilize at 80,000 between 1968 and 1990 -- despite short run displacements -- while employment is projected to increase at a modest rate of 1% per year through 1990. Moderate levels and effectiveness will characterize the public programs in the area. The future pattern in the study area will essentially be stable in this situation.

iii. Situation C - In this case population growth of the study area is projected at a 0.6% annual gain between 1968 and 1990. This rate is equal to the population growth for the metropolitan area between 1960 and 1968. The employment projection for the

study area is at the rate of 400 employees per year through 1990, or 3% per year, slightly above the 2% growth in metropolitan employment in recent years. Full participation in the growth patterns of the metropolitan area as projected here would require public programs to operate at high levels and effectiveness.

b. Because employment decline in the city of Boston is being arrested, and renewal prospects relating to the study area indicate that population decline should diminish, future patterns in the study area will likely stabilize. Thus the case which will most likely represent the future of the area is Situation B, a relatively stable prospect in population and job terms. The probabilities which might normally be with situations A, B, and C are shown in the following tabulation.

PROBABILITY ESTIMATES, FOR THREE ALTERNATE PROJECTIONS
SOUTHWEST CORRIDOR STUDY AREA

Situation	Probability
A. Stagnant	20%
B. Stable	60%
C. Metro Share	20%
Total	100%

Since the future of the area is directly dependent on the levels and effectiveness of various public programs, any trend shift from Situation A to B and from Situation B to C would of necessity rely on an increase

in the level and effectiveness of the involved public programs.

In the same sense, the declining pattern shown for Situation A, is associated with low program levels and effectiveness; and the projections for Situation C, increasing population and employment are associated with high program level and effectiveness.

c. The differential influence on area development of depressed and elevated designs were derived from systematic comparisons of depressed and elevated design development factors. Review of these factors -- presented in detail subsequently -- indicates a more favorable development impact for the depressed corridor design in more than five times as many cases as in the elevated design.

d. Design of transportation corridor affects the probability estimates set forth earlier for the three study area prospects. These estimates as modified are shown in the following table.

PROBABILITY ESTIMATES, THREE ALTERNATE PROJECTIONS, ELEVATED AND DEPRESSED CORRIDOR DESIGN

	Study Area Prospects		
Situation	Basic Alternatives	Elevated Corridor	Depressed Corridor
A. Stagnant	20%	30%	10%
B. Stable	60%	60%	60%
C. Metro Share	20%	10%	30%
Total	100%	100%	100%

The key factors differentiating study area prospects from one another in relation to corridor design derive from analysis of the relative effects of various programs -- inlcuding corridor design -- in stimulating trend shifts in the area's growth pattern. The basis for these calculations is detailed in the report text which follows.

4. Results of the analysis are presented in two sequences. The first relates the population and employment projections to projections of acreage devoted to residential, commercial, industrial and other uses. The second relates the population and employment projections to the number and type of residential units; household income distributions; commercial and industrial floor area; and employment by types.

   a. Population and employment projections for situation A, B and C were used as a basis for land use computations through 1990. Categories of land use for which the estimates were made include residential; commercial; industrial; institutional; parks and playgrounds; streets and ways; and residual vacant areas. See Table 7 in the text that follows.

      i. The Situation A projection -- characterized as stagnant -- exerts no pressure on land use asillustrated by the increase in vacant land between 1968 and 1990.

      ii. Situation B projection, characterized as stable with moderate increases in economic activity, exerts pressure on land in the Southwest Corridor as illustrated by the decline in vacant land to a zero level in 1975 and the build-up of "spill-over" pressures

measured at 50 acres in 1990.

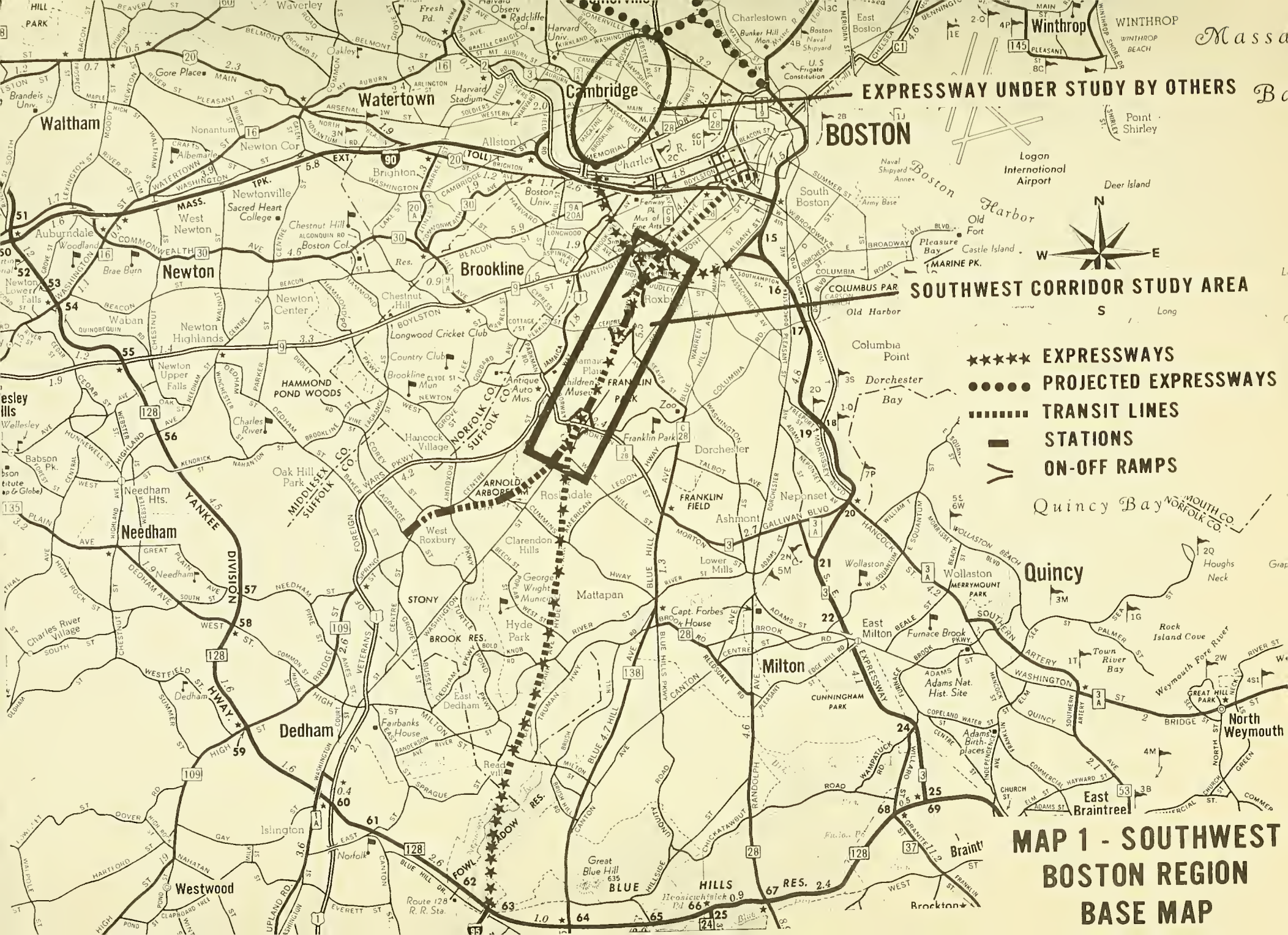
iii. Situation C projection, characterized as full participation in the metropolitan area's growth pattern, places heavy pressure on Southwest Corridor land. This pressure is illustrated by the "spill-over" acreage accumulated between 1968 and 1990 -- projected at 275 acres by 1990.

b. The differential impact of elevated and depressed designs would affect -- through population and employment prospects -- floor space used in the area; the number of residential units occupied; family income patterns; and job characteristics indexed by blue and white collar and by skilled, semi-skilled, and unskilled categories. In each case the land use forecasts imply in overall terms the pattern to be expected for the group of indexes as listed above. Tabulations subsequently included provide specific details.

II. Study Objectives

The purpose of this study is to determine the potential demand for various types of residential, commercial and industrial development for both elevated and depressed transportation corridors. The framework for the analysis includes a development of study area potentials in five year and ten year increments from the present through 1990. Estimates have been made for the depressed and elevated effects on these potentials and expressed in marketability terms for critical categories of land use.

> A quantative basis establishing rational dimensions in land use and marketability terms has been developed in this report. The procedures utilized to accomplish this are specifically identified and explained in the text which follows. The end products are projections of land use: first in acreage terms and then in terms of key characteristics of land use.


EXPRESSWAY UNDER STUDY BY OTHERS
SOUTHWEST CORRIDOR STUDY AREA
EXPRESSWAYS
PROJECTED EXPRESSWAYS
TRANSIT LINES
STATIONS
ON-OFF RAMPS
MAP 1 - SOUTHWEST
BOSTON REGION
BASE MAP
BOSTON
Cambridge
Watertown
Waltham
Newton
Brookline
Needham
Dedham
Westwood
Milton
Quincy
Winthrop
Logan International Airport
Boston Harbor
Quincy Bay
Dorchester Bay
Charles River
Franklin Park
Zoo
Arnold Arboretum
Harvard Stadium
Fenway Pk
Mus of Fine Arts
Boston Univ.
Boston Col.
Harvard Univ
Longwood Cricket Club
Country Club
Brookline Mun
Antique Auto Mus.
Hammond Pond Woods
Oak Hill Park
Needham Hts.
Newton Center
Newton Highlands
Newton Upper Falls
Newton Lower Falls
Auburndale
West Newton
Newtonville
Waban
Chestnut Hill
Brae Burn
Sacred Heart College
Babson Pk.
Charles River Village
Fairbanks House
Hyde Park
Mattapan
Roslindale
West Roxbury
Jamaica Plain
Children's Museum
Franklin Field
Dorchester
Ashmont
Lower Mills
Neponset
Wollaston
Merrymount Park
Houghs Neck
Rock Island Cove
Town River Bay
Weymouth Fore River
North Weymouth
East Braintree
East Milton
Furnace Brook Pkwy
Adams Nat. Hist. Site
Adams Birthplaces
Capt. Forbes House
Cunningham Park
Great Blue Hill
Blue Hills
Hoosicwhisick Pd
Route 128 R.R. Sta.
Old Harbor
Columbia Point
South Boston
Old Fort
Pleasure Bay
Castle Island
Marine Pk.
Columbus Par
Deer Island
Point Shirley
Naval Shipyard Annex
Army Base
U.S. Frigate Constitution
Bunker Hill Mon.
Boston Naval Shipyard
East Boston
Charlestown
Somerville
Medford
Arlington
Belmont
Brandeis Univ.
Gore Place
Moody
Crafts
Albemarle
Nonantum
Allston
Brighton
Oakley
Common
Auburn
Arsenal
Soldiers Field
Memorial
Massachusetts
Magazine
Brookline
Beacon
Commonwealth
Washington
Centre
Walnut
Chestnut
Lake
Hammond
Beacon
Boylston
Huntington
Longwood
Aspinwall
Jamaica
Pleasant
Columbia
Dudley
Roxbury
Albany
Southampton
Summer
Broadway
Dorchester
Old Colony
Day
Morrissey
Neponset
Gallivan
Hancock
Wollaston Beach
Quincy
Southern Artery
Washington
Granite
Wampatuck
Randolph
Canton
Blue Hill
Hillside
Chickatawbut
Unquity
Milton
Reedsdale
Edge Hill
Pleasant
Truman
Brush Hill
Adams
Brook
Centre
Beale
Furnace Brook
Palmer
Sea
Bridge
Great Hill Park
Commercial
Church
Elm
Franklin
Independence
Copeland
Water
Hancock
Quincy
Southern Artery
Washington
Adams
Granite
Braintree
Weymouth
Hingham
Norfolk
Islington
Dover
Gay
Hartford
Nahatan
Pond
Clapboard Tree
Everett
Upland Rd
Fowl
Blue Hill Dr.
Canton
Turtle
Stony
Brook Res.
Bridge
Veterans
Foreign
Spring
Grove
Brussey
Sanderson
Sprague
Milton
Fairbanks
East Dedham
Dedham
Westfield
Summer
High
Needham
Great Plain
Dedham Ave
South
West
Pine
Common
Maple
Chestnut
Rock
Plain
Kendrick
Nahanton
Highland
Webster
Central
Forest
Oak
Needham
Yankee Division
Hwy.
Middlesex
Suffolk
Co.
Norfolk
Plymouth Co.
Mass Pike
Turnpike
Extension
Route 1
Route 2
Route 3
Route 9
Route 16
Route 20
Route 28
Route 30
Route 109
Route 128
Route 135
Route 138
Route 145
Route 24
Route 93
Route 95
Route 90
Route 1A
Route 3A
Route 9A
Route 20A
Route 28A
Route 30A
Route 1E
Route 1J
Route 2B
Route 2C
Route 3C
Route 3S
Route 4B
Route 5M
Route 6C
Route 6W
Route 7P
Route 8C
Route 9C
Route 1U
Route 2M
Route 2O
Route 2Q
Route 2W
Route 3M
Route 4M
Route 4S1
Route 1G
Route 1T
Route 3B
Route 53
Route 37
Route 68
Route 69
Route 66
Route 67
Route 62
Route 63
Route 64
Route 65
Route 60
Route 61
Route 59
Route 58
Route 57
Route 56
Route 55
Route 54
Route 53
Route 52
Route 51
Route 50
Route 25
Route 24
Route 22
Route 21
Route 20
Route 19
Route 18
Route 17
Route 16
Route 15
Route 10
Route 1-0
Route 2-0
Route 4-8
Route 5-8
Route 3-9
Route 3-3
Route 2-6
Route 2-7
Route 3-6
Route 4-1
Route 4-7
Route 4-6
Route 4-2
Route 5-3
Route 4-4
Route 5-9
Route 1-9
Route 1-8
Route 1-5
Route 1-4
Route 1-3
Route 1-2
Route 1-1
Route 1-7
Route 1-6
Route 2-3
Route 2-4
Route 2-5
Route 3-2
Route 0-7
Route 0-5
Route 0-4
Route 0-9
Route 1-0
Route 2-0
Route 2-1
Route 1-2
Route 0-5
Route 0-4

Population and employment estimates were specifically prepared for the present and for the years 1972, (projected initial year of operation for the proposed transportation corridor facilities) 1975, 1980 and 1990. These estimates serve as the primary basis for estimating future land use and employment characteristics in the study area.

Land use indexes include acreage estimates of land devoted to residential, industrial, commercial, institutional, parks and playgrounds, streets and ways and vacant land. Other measures of land use include the number and type of residential units and structure in the study area and square footage requirements for commercial and industrial space. In addition, household income patterns have been estimated as has blue and white-collar and skilled, semi-skilled and unskilled employment.

The differential impact of elevated and depressed transportation corridor on population and employment levels has been estimated for all uses described. Factors causing the differential impact are presented in table form. For each projection of population and employment, associated land use quantities have been developed.

III. Method of Analysis

The specific steps undertaken include the following: analysis of area trends including the metropolitan area, the city and the study area; review of existing programs operating in the study area and analysis of their impact; evaluations of transportation corridor influence on the area; and the relative importance of the transportation corridor design as part of the full array of the programs affecting the study area.

Recent population and employment trends have differed for the metropolitan area as compared to the city and the study area. The metropolitan area has had an increase in population at an annual rate of 0.6% since 1960. Between 1960 and 1967 population in the metropolitan Boston area increased from 3.1 million to 3.2 million. During this same time period employment increased from 1.1 million to 1.2 million -- a 2.0% annual rate of gain.

The city of Boston on the other hand has recorded declines in both population and employment levels. Between 1960 and 1967 the population of the city declined at the average rate of 1.5% a year. Between 1960 and 1963 employment declined 2.2% per year. However, recent activity in the central business district of Boston has diminished this decline.

The Southwest Corridor Study Area has recorded population and employment losses similar to the city. Between 1963 and 1968 population declined from an estimated 82,500 to its present level of 80,000 -- an annual rate of 0.6%. Employment has also declined. Between 1963 and 1968 the number of area jobs dropped at the rate of 1.0% a year, from 20,000 in 1963 to 19,000 in 1968.

The study area can more readily participate in the larger metropolitan community and its future development pattern as a result of an improved transportation corridor. The operation of this corridor will permit easier access into and out of the study area for area residents, commuting workers and for movement of industrial and commercial goods.

The Southwest Corridor Study Area could normally be expected to follow the general pattern of the city of Boston. However, a number of public programs are currently operating in the area which could potentially alter its prospects for future population and employment levels. The level and effectiveness of these programs

will directly influence the future of the study area. These include model cities; anti-poverty; education facilities and programs; urban renewal; housing code enforcement; housing, both public and special assistance; recreation facilities and programs; health services; other municipal services; and the transportation system itself. The design of the transportation corridor is therefore one factor in one program that will operate in conjunction with many, to affect the future of the study area.

The programs enumerated above have different impacts on future population as compared to employment. Each of the programs listed affects future population while model cities; anti-poverty; urban renewal; and the transportation system most directly affect future employment in the study area. These public programs tend also to be inter-related -- as components in a system -- so that if one program functions poorly, the level and effectiveness of other programs are also likely to suffer. This interrelationship is even further extended as a result of correlated trends in finding operations for program groups.

The specific design of the transportation corridor -- elevated and depressed -- is a key aspect of the transportation system that will influence future development prospects of the study area. Analysis of a series of critical development factors show that population growth is especially responsive to design considerations. Increases in population accordingly are associated with depressed designs for the transportation corriodr. Employment, on the other hand, is less sensitive to corridor design and the projections so reflect.

The elevated and depressed corridor along with other transportation elements such as type of structure, width of right-of-way, and joint development possibilities, control the level and effectiveness of the transportation system in relation to area development potential. A poorly planned corridor, no matter what the design would be injurious to the study area. On the other hand, a well designed corridor would tend to have positive effects on the area in overall terms. Likewise in overall terms, the tendency would be for depressed design to be more closely associated with population growth and increases in economic activity as compared to elevated designs; and conversely, for an elevated design to be associated more with declining population. These relationships are fully developed in a subsequent section.

IV. Study Framework

Analysis of the population and employment projections for the study area take into account recent trends in employment and population levels for the metropolitan area, the city of Boston and the Southwest Corridor Study Area. The level and effectiveness of the public programs currently functioning in the study area are estimated for each projection. The importance of corridor crossection design on the future projections for the study area are appraised and probability estimates of all projections are established to account the effects of elevated and depressed sections.

Population and Employment Estimates

A current population level of 80,000 was estimated for the area using the 1960 Census of Population updated by means of the 1963 Origin and Destination Survey available through MAPC. Other materials utilized were included "The Economic Analysis of the Jamaica Plain GNRP Area" and "The Economic Analysis of the Parker Hill-Fenway GNRP" prepared for the Boston Redevelopment Authority in connection with urban renewal projects in those areas.

Employment estimates in the study sector -- currently set at 19,000 -- were prepared using similar resources. In addition, the Department of Employment Security provided job totals by traffic zones in the study area for 1963. The estimated number of manufacturing and non-manufacturing firms in the study area in 1968 were estimated by the Boston Redevelopment Authority.

Public programs and facilities currently operating in the study area that will affect future employment and population levels include: model cities; anti-poverty; education facilities and programs; urban renewal ; housing code enforcement; housing-- public and special assistance; recreation facilities and programs; health services; other municipal services; and the transportation system. The extent and quality of these programs will be major factors in influencing the future of the study area.

> Three population and employment projections were made for the study area. The two important considerations basic to the projections were (1) the extent of participation by the study area in metropolitan growth and (2) the level and effectiveness of public programs operating in the study area. The presence of a new transportation corridor by 1972 is assumed for each projection.

These projections portray a range of possibilities the study area might experience in terms of prospective employment and population levels. Critical in the ultimate levels actually realized in the area will be public policies as expressed in programs applied and funded. The range of prospects can be summarized in each of three cases: A; B; and C.

Situation A. The first projection shows population declining through 1980 at the same rate that the study area has recorded in the recent past. Between 1980 and 1990 population can be expected to level out and the

decline reduced. The employment projections show a stable job level at 19,000 through 1990. This stable outlook is influenced in meaningful part by the presence of a new transportation corridor which can be expected to function at low levels and effectiveness in this area. Thus both future population and employment levels would be lowered. In general, this situation is characterized by a decaying population base and a stable employment level -- in sum a stagnant situation.

Situation B. The next alternative projected shows the study area participating more fully in metropolitan area population and employment patterns. Population is projected to level out and remain at 80,000 between 1968 and 1990. Family displacement and projected replacement through 1972 is specifically taken into account in this projection.

The following table tabulates family displacements in corridor right-of-way as well as other displacements for other programs. The table also contains programmed replacements through 1972.

Table 1. FAMILY DISPLACEMENT AND PROJECTED REPLACEMENT THROUGH 1972, SOUTHWEST CORRIDOR STUDY AREA

Projects	No. Families	No. Persons
A. Displacements		
1. Campus High	445	
2. Code Enforcement	36	
3. South End Renewal	30	
4. Washington Park Renewal	0	
5. Fenway Renewal	0	
6. Transportation Right of Way	730	
Total	1,241	3,880

	No. Families	No. Persons
B. Replacements		
1. Infill Housing	102	
2. Public Housing	351	
3. 221 D-3 Housing Projects	140	
4. Campus High Project	375	
Total	958	2,800

Source: Boston Redevelopment Authority; Housing Inspection Department, Boston Housing Authority; the Department of Public Works

Employment projections for Situation B are set at the modest rate of one percent per year through 1990. This rate is half that for recent years in metropolitan area. Population and employment projections will be affected by the moderate level and effectiveness of the public programs functioning in the study area, however. In general, Situation B can be characterized as stable with level population prospects and modest employment gain.

Situation C. The final projection shows population growth rates in the study area between 1968 and 1990 equaling the metropolitan area's for recent years -- 0.6 percent. The study area could thus be participating fully in the growth of the metropolitan area in this projection.

The employment projection for the study area is at the rate of 400 per year through 1990. This is at the rate of 3 percent per year and slightly exceeds the 2 percent rate growth in metropolitan employment. Full participation in the growth of the metropolitan area could require public programs to operate at high level and effectiveness. Situation C can be summarily described as full participation for the study area in metropolitan population and employment growth patterns.

Probability Estimates. The employment decline in the city of Boston over the past twenty years has begun to level out as evidenced by the increased economic activity in the Central Business District. Much of this activity was triggered by public programs operating in the CBD. The renewal programs and associated residential-related activity projected for the study area indicate that the population decline in the study area will likewise be arrested.

While the past eight years have shown a decaying situation in the study area, continued metropolitan employment and population growth, increases in employment activity in the Central Business District of Boston and the potential for the diminishing population decline in the study area strongly suggest that population and employment levels in the study may now likely move toward stabilization. Thus the projection which in our judgment will most likely represent the future of the area is Situation B -- a relatively stable condition.

The future of the study area will however be influenced strongly by the level and effectiveness of the public programs operating there as already indicated. If these programs perform at low levels and effectivenesss, the outlook for the area would be continued decay. This outlook is represented in the Situation A projection. If, on the other hand, programs function at high levels and effectiveness, the study area can then potentially participate fully in the growth at the metropolitan area level as projected in Situation C. This latter prospect respresents the most ambitious and the highest reasonable level obtainable for the area in our judgment.

> To recap, the projections described previously, situations A, B and C, generally describe the range of possibilities open to the southwest corridor study area. The Situation B projection, representing stability, is the most likely to

occur. The study area should, with the city, expand its role in the metropolitan area's economic activity in the period ahead contrasting with that recently past. The public programs functioning in the area can arrest the past decline and likely create a stable area pattern.

The continuing decay prospect, Situation A, and the metro share projection, Situation C, are equally less likely to occur than B, we believe. All projections are closely identified with the level and effectiveness of public program activity in the study area.

The following table contains probability estimates for the three projections in the Southwest Corridor Study Area:

Table 2. PROBABILITY ESTIMATES, THREE ALTERNATIVE PROJECTIONS, SOUTHWEST CORRIDOR STUDY AREA

Situation	Probability
A. Stagnant	20%
B. Stable	60%
C. Metro Share	20%
Total	100%

Program Effectiveness. Presently the study area has a declining trend in its population and economic activity. A series of programs have been instituted to alter prospects for the area. To move from further decay toward stability presumes these programs will function well. If further growth from stability to fully sharing in the metropolitan growth is to occur, then these programs must function at high levels and effectivenesss.

The following tables 3 and 4 set forth relative program effects estimated to bring about trend shifts as between Situation A and B and between Situation B and C. Table 3 calibrates program effectiveness in relation to study area population factors and Table 4 to program effectiveness for employment levels in the area.

Table 3. STUDY AREA POPULATION

PROGRAM EFFECTIVENESS INDEXES

Program Types [2]	Relative Program Effects In Motivating Situation Changes [1]			
	A to B		B to C	
	Elev.	Depress.	Elev.	Depress.
1. Model Cities - Anti-Poverty Programs: Employment & Job Training	2	2	3	3
2. Education Facilities & Programs	1	1	2	2
3. Urban Renewal - Housing Code Enforcement	1	1	2	2
4. Housing: Public & Special Assistance	2	2	2	2
5. Recreation Facilities & Programs	1	1	1	1
6. Health Services	1	1	1	1
7. Other Municipal Services	1	1	1	1
8. TRANSPORTATION:				
Freeway & Transit Improvements [3]	1	3	1	3
TOTAL	10	12	13	15
Differential Impact Ratios: Elevated vs. Depressed Section	10 ÷ 12		13 ÷ 15	

1/ See notes covering situation descriptions. Differential programs impacts provide the basis for three alternate prospects for study area.

2/ Primary existing and projected programs for public actions in study area.

3/ Includes S.W. Freeway and new MBTA service in rail corridor.

Table 4. STUDY AREA EMPLOYMENT
PROGRAM EFFECTIVENESS INDEXES

Program Types 2/	Relative Program Effects In Motivating Situation Changes 1/			
	A to B		B to C	
	Elev.	Depress.	Elev.	Depress.
1. Model Cities Anti-Poverty Programs: Employment; Job Training	2	2	3	3
2. Urban Renewal	2	2	3	3
3. Other Municipal Services	1	1	1	1
4. TRANSPORTATION: 3/ Freeway & Transit Improvements	3	4	3	4
TOTAL	8	9	10	11
Differential Impact Ratios: Elevated vs. Depressed Section	8 ÷ 9		10 ÷ 11	

1/ See notes covering situation descriptions. Differential programs impacts provide the basis for three alternate prospects for study area.

2/ Primary existing and projected programs for public actions in study area.

3/ Includes S.W. Freeway and new MBTA service in rail corridor

The set of program effectiveness index are used here to systematically dimension impacts of the transportation corridor design. The difference between elevated and depressed projections is quantitatively set by the differential impact ratios shown above for the shifts between Situations A and B and B and C.

> For the program effectiveness related to population patterns, eight program types have been evaluated. The trend from Situation A to B would be more substantially influenced by a depressed design than an elevated design; for this case the depressed design was assigned 3 as compared to 1 for the elevated design. Other programs would remain neutral in respect to this issue; hence carry equal weights in both cases. As can be seen, the corridor design factor is one of many influencing the access trends.

Similarly for the trend from Situation B to C, the effect of a depressed design carries a relative weight of 3 as compared to 1 for an elevated design. The differential impact of an elevated versus a depressed section, acting in conjunction with other programs, therefore in the A to B movement is 10 ÷ 12 -- relatively more important as compared to the 13 ÷ 15 in the Situation B to C shift.

For program effectiveness related to employment, the difference between elevated and depressed for shifts from A to B and B to C is small. In the A to B trend, a value of 4 was estimated to the depressed design as compared to 3 for the elevated. The same weights were expected for the B to C movement. Accordingly the differential program impact for depressed and elevated design in the A to B shift -- when the total program package is considered -- is 8 ÷ 9 in the case of the B to C movement it is 10 ÷ 11.

Development Factor Analysis. The differential impact of depressed compared to elevated designs on population and employment projections are illustrated in the previous tables 3 and 4. These differential influences were directly derived from comparisons of depressed and elevated designs development factors. These development factors were obtained from numerous references secured in the course of the research and analysis on this assignment. They favor a depressed over an elevated corridor by a factor ratio exceeding 5 to 1. Table 5 following summarizes these points below.

Table 5. COMPARISON OF DEPRESSED AND ELEVATED DESIGN DEVELOPMENT FACTORS[1/]

Item	Elevated Better Than Depressed	Elevated Equal To Depressed	Depressed Better Than Elevated
1. Joint Development Opportunities	0	0	++
2. Visual Division Effect	0	0	++
3. Crossing-Circulation	0	+	0
4. Noise Effects	0	0	+
5. Physical Division	0	+	0
6. Respondent Impact on Adjacent Developed Land Use			
A. Industrial			
i. Area Resident	0	+	0
ii. Property Owners	0	0	+
B. Low Density Residential			
i. Area Resident	0	0	++
ii. Occupant	0	0	++
C. Medium Density Residential			
i. Area Resident	0	0	++
ii. Occupant	0	0	++
D. High Density Residential			
i. Area Resident	0	0	+
ii. Occupant	0	0	+
E. Commercial Centers			
i. Shoppers	+	0	0
ii. Owners	+	0	0
F. Institutions - Users Response	0	0	+
7. Impact on Future Development Potential			
A. Industry	0	+	0
B. Low Density Residential	0	0	++
C. Medium Density Residential	0	0	+
D. High Density Residential	0	+	0
E. Commercial Centers	+	0	0
8. Flexibility for Changing Use	0	0	+
9. Re-Development Potential	0	0	+
10. Social Program Realization	0	0	++
11. Labor Market Impact	0	0	+
12. Tax Revenue Potential	0	0	+
13. Psychological Impact on Community	0	0	++
14. Freeway and Transit Users Response	++	0	0
Totals	5	5	28

Notes:

0 Null - effect
+ Effect as noted in column heading
++ Substantial effect

1/ See the list of references at the back of the report used to establish these comparisons

> The analysis of the development factors presented in the previous table demonstrates the impact of transportation corridor design and the specific influence on population projections. The only development instances where elevated was judged better than depressed included commercial centers and in the response of freeway and transit users. In each case, where residents of the community are affected the depressed was judged better than elevated. The general results shown in the table accord with conventional wisdom and empirical development results even though surveys of reaction to previously completed freeway systems were used in compilation here.

Following is a brief review of key items in relevant sources surveyed in the process of deriving the comparison of depressed and elevated design development factors. Particulary useful was "A Policy On Arterial Highways in Urban Areas" by the American Association of State Highway Officials. Brief summary with exceprts from this reference follow below:

> A depressed freeway has several advantages over other forms of arterial highways - it does not present a visual barrier to adjacent developments. "It is flexible in that future requirements of cross traffic can be satisfied readily by providing additional structures across the freeway...". "The ramps slope up where vehicles decelerate and down where they accelerate." When constructed within adequate right-of-way it is pleasing in appearance and gives a sense of openness. It tends to muffle undesirable noises of moving vehicles.

Some disadvantages -- relating to engineering and costs rather than development factors -- include:

> Drainage may be difficult and expensive. Extensive reconstruction of underground facilities may be required. "Acquisition of considerable right of way may be necessary...".

This same reference further comments on elevated highways as follows:

> "...continuous elevation is generally acceptable in industrial or commercial areas but rarely in residential areas.""An elevated freeway on embankment with appropriate landscaped slopes may be acceptable in residential areas where there is adequate right of way.""Normally an elevated freeway requires

> less right of way than a depressed facility." "Freeways on embankments are feasible in urban areas with crossing streets not too closely spaced where wide right of ways and excavation material are available. Long continuous sections seldom are practical."

Another reference, "The Freeway in the City" a report to the Secretary of the Department of Transportation, emphasizes the need for joint development between the highway program and other programs.

> "Out of all serious dialogue on urban expressways, today emerges one insistent and compelling idea: that of using the highway to structure or restructure the city.""When the freeway, to its multiple use and air-rights possibilities adds to rather than subtracts from, the store of buildable urban space, and augments, rather than decreases the tax ratables, it will have greatly enhanced its position in the city -- and it's welcome."

Another reference, "Freeways", by Lawrence Halprin the landscape architect and urban designer, indicates that:

> "The elevated freeway on embankment is a very typical kind used -- in low density urban areas and is a favorite with railroad engineers." "Community impact can be worse than that of the depressed freeway or elevated via docks. Wide swaths are cut through neighborhoods, disrupting them; and the fine grain of the neighborhood is destroyed with a new diverse element. What is more, the vertical embankment serves actively as a long visible barrier from one side of the freeway to the other." For a depressed type, "the community impact in terms of noise is fairly good, and at a distance, the freeway is obscured from view. Of all the side-by-side freeways, however, this is the best because its visual impact is ameliorated."

A number of other references were used to develop comparisons of depressed and elevated design development factors. These references are cited specifically in the bibliography which follows at the end of the report.

The impact of improved transportation access on land values has been often and elaborately documented. Improved access stimulates development of industrial, commercial and intensive residential use of nearby land and generally triggers increases in land values. Increased accessibility and visibility to and from sites near the expressway is the key factor related to this increase. The study has not focussed on a highest and best use analysis but these factors definitely relate to land development and market potentials in the study area. Accordingly we have projected general land use and marketability patterns associated with the range of possible prospects for the study area.

Elevated and Depressed Designs. Probability estimates were previously set forth for Situations A, B and C. The stable prospect for the area -- Situation B -- was estimated to be the most likely to occur at 60%. The other situations A and C, were given equal chances of occurring at 20% each. A new set of probabilities -- modified from the above -- result when the design of the freeway is considered. These estimates are summarized in the following table:

Table 6. PROBABILITY ESTIMATES ELEVATED AND DEPRESSED CORRIDOR DESIGN

Situations	Basic Alternatives	Elevated Corridor	Depressed Corridor
A. Stagnant	20%	30%	10%
B. Stable	60%	60%	60%
C. Metro Share	20%	10%	30%
Total	100%	100%	100%

The design of the transportation corridor changes the probability of Situation A and Situation C, but leaves unchanged the most probable situation B. Situation A, the stagnant projection, is more likely to occur if the corridor is elevated as compared to if it is depressed. Program effectiveness index presented above and the comparison of depressed and elevated design development factors illustrate that an elevated design would typically be associated with reduced effectiveness in the transportation program as compared to the depressed design -- especially in relation to population factors. Since the Situation A projection is influenced by reduced program effectiveness it is more closely associated with the elevated corridor, and therefore the higher probability for this prospect -- 30% as compared to 10% for the depressed section.

The projection involving full metropolitan growth participation -- Situation C -- requires high program effectiveness. The depressed design with its more favorable development impacts increases the probability of the high range Situation C occurring to 30%. Conversely, if the transportation corridor is elevated, the chance for Situation C drops to 10%. The quantitative implications of each of these situations and designs are set forth in tabular and graph form in the next section below.

V. Results

The results of our analysis are presented in two forms, the first relates the population and employment projections to estimates of acreage devoted to residential, commercial, industrial and other land use. The projections described by situations A, B and C are the basis for these acreage estimates. The second relates the

population and employment projections to number and type of residential units and structures; household income distribution; commercial space-retail trade and service, cultural and entertainment, office and parking; industrial space-manufacturing and wholesale distribution; and employment-blue and white collar and skilled, semi-skilled and unskilled. Estimates for these land use and employment characteristics define the potential differences associated with elevated and depressed designs in the corridor.

The estimates of acreage expected for residential, commercial, industrial, institutional, parks and playgrounds, streets and ways and vacant land are included in the following table for each projection in Situations A, B and C.

Table 7 ESTIMATED CHANGES IN LAND USE AND POPULATION - EMPLOYMENT PROJECTIONS FOR 1972, 1975, 1980 AND 1990 -- SOUTHWEST CORRIDOR STUDY AREA, BOSTON

Situation A:	1968	1972	1975	1980	1990
			Numbers		
Population	80,000	78,000	76,500	74,000	71,500
Employment	19,000	18,000	19,000	19,000	19,000
			Acres		
Residential	1,220	1,195	1,175	1,160	1,130
Commercial	100	70	80	80	70
Industrial	230	210	230	230	230
Institutional	80	100	100	100	100
Parks and Playgrounds	150	130	130	130	130
Streets and Ways	125	170	170	170	170
Vacant	15	35	35	85	90
Total Acres	1,920	1,920	1,920	1,920	1,920
Spillover	--	(0)	(0)	(0)	(0)

Situation B:	1968	1972	1975	1980	1990
			Numbers		
Population	80,000	80,000	80,000	80,000	80,000
Employment	19,000	18,000	19,000	20,000	22,000
			Acres		
Residential	1,220	1,220	1,220	1,220	1,220
Commercial	100	80	80	80	80
Industrial	230	210	230	250	270
Institutional	80	100	100	100	100
Parks and Playgrounds	150	130	130	130	130
Streets and Ways	125	170	170	170	170
Vacant	15	10	0	0	0
Total Acres	1,920	1,920	1,930	1,950	1,970
Spillover	--	(0)	(10)	(30)	(50)

Table 7 continued

Situation C:	1968	1972	1975	1980	1990
			Numbers		
Population	80,000	81,000	83,500	86,000	91,000
Employment	19,000	20,500	21,700	23,600	27,500
			Acres		
Residential	1,220	1,235	1,270	1,310	1,385
Commercial	100	100	103	105	110
Industrial	230	230	250	270	300
Institutional	80	100	100	100	100
Parks and Playgrounds	150	130	130	130	130
Streets and Ways	125	170	170	170	170
Vacant	15	0	0	0	0
Total Acres	1,920	1,965	2,023	2,085	2,195
Spillover	--	(45)	(103)	(165)	(275)

Study Area Prospects. The Situation A projection, characterized as stagnant, exerts no pressure on land use between the present and 1990. In fact, vacant land is projected to increase from its present level of 15 acres to 90 acres by 1990 based on area decline. Specifically, decreases in commercial and residential needs lead to this increase in vacant land.

The Situation B projection, characterized as stable does exert pressure on land in the Southwest Corridor. By 1975 the vacant land is expected to decline from 15 acres to 0 as a result of the increase of land needs for industrial purposes. Industrial land needs should continue to increase. Thus by 1990 an excess acreage or spillover of 50 acres is anticipated for the study area. More intensive use of land for industrial purposes would be necessary to accommodate this forecast, or the use would relocate out of the area.

The Situation C projection, full participation in the metropolitan area's growth, places heavy pressure on land in the study area. These pressures derive from increased needs for residential, commercial and industrial space. By 1990 the spillover acreage would total 275 acres. Intensive use for all three major land use categories would be necessary if shifts in demand do not intervene.

Elevated and Depressed Projections. The differential impact of an elevated and depressed design have been estimated for Situations A, B, and C. Two projections result for each situation - one each, for elevated and depressed cross-sections. These projections include impacts on employment and population levels as well as on land use. The following table shows the employment and population estimates associated with an elevated and depressed corridor.

Table 8. POPULATION AND EMPLOYMENT ESTIMATES FOR ELEVATED AND DEPRESSED DESIGNS, SOUTHWEST CORRIDOR STUDY AREA

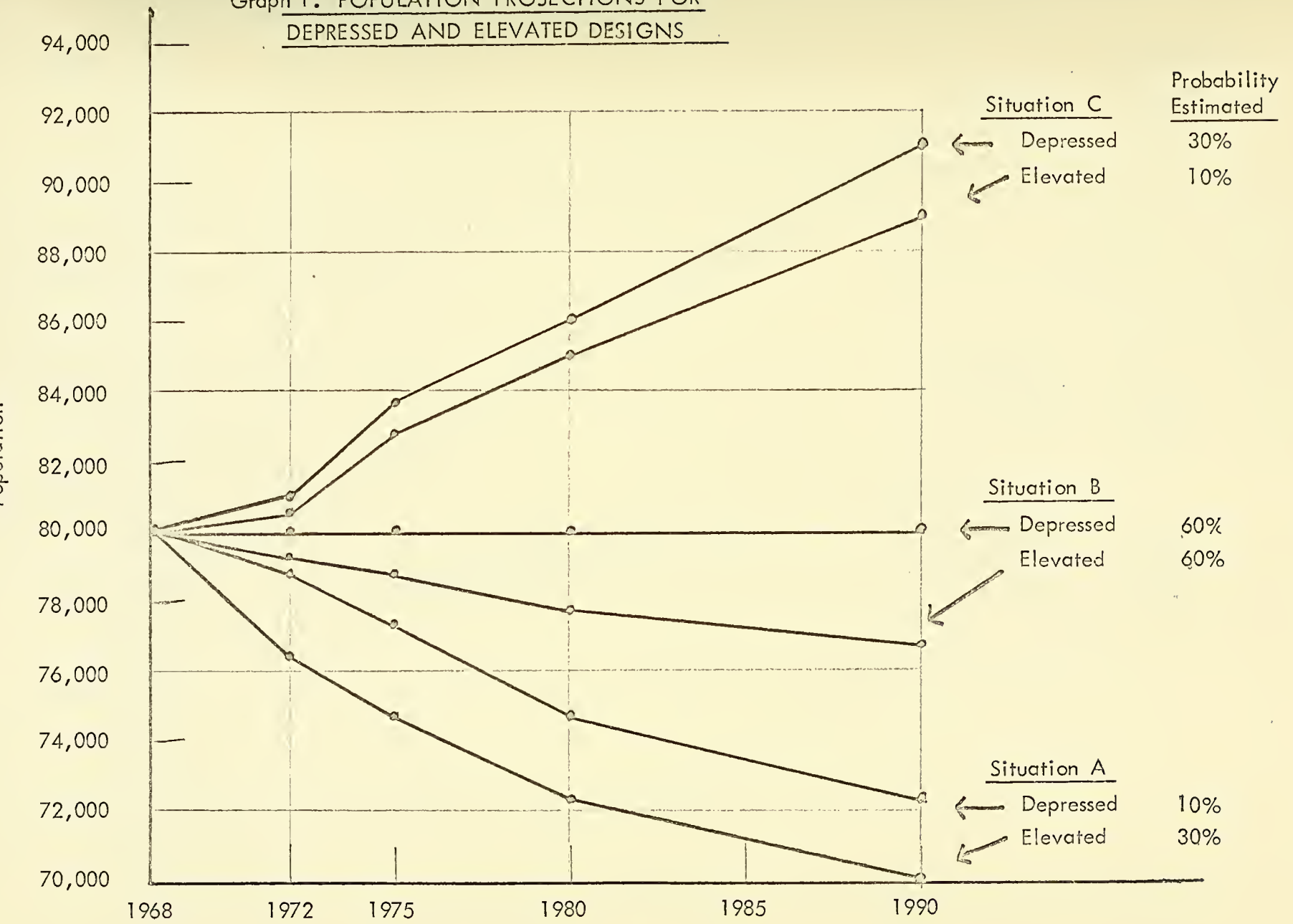
	1968	1972	1975	1980	1990
Population:					
Situation A: Stagnant					
Elevated	80,000	76,400	74,900	72,400	69,900
Depressed	80,000	78,800	77,200	74,700	72,200
Situation B: Stable					
Elevated	80,000	79,200	78,600	77,600	76,600
Depressed	80,000	80,000	80,000	80,000	80,000
Situation C: Metro Share					
Elevated	80,000	80,200	82,900	85,000	89,000
Depressed	80,000	81,000	83,500	86,000	91,000
Employment:					
Situation A: Stagnant					
Elevated	19,000	18,000	19,000	19,000	19,000
Depressed	19,000	18,000	19,000	19,500	20,500
Situation B: Stable					
Elevated	19,000	18,000	19,000	19,500	21,000
Depressed	19,000	18,000	19,000	20,000	22,000
Situation C: Metro Share					
Elevated	19,000	20,300	21,500	23,370	27,230
Depressed	19,000	20,500	21,700	23,600	27,500

In each situation the depressed estimate is equal to or greater than the elevated estimate. The differences are greater for population than employment.

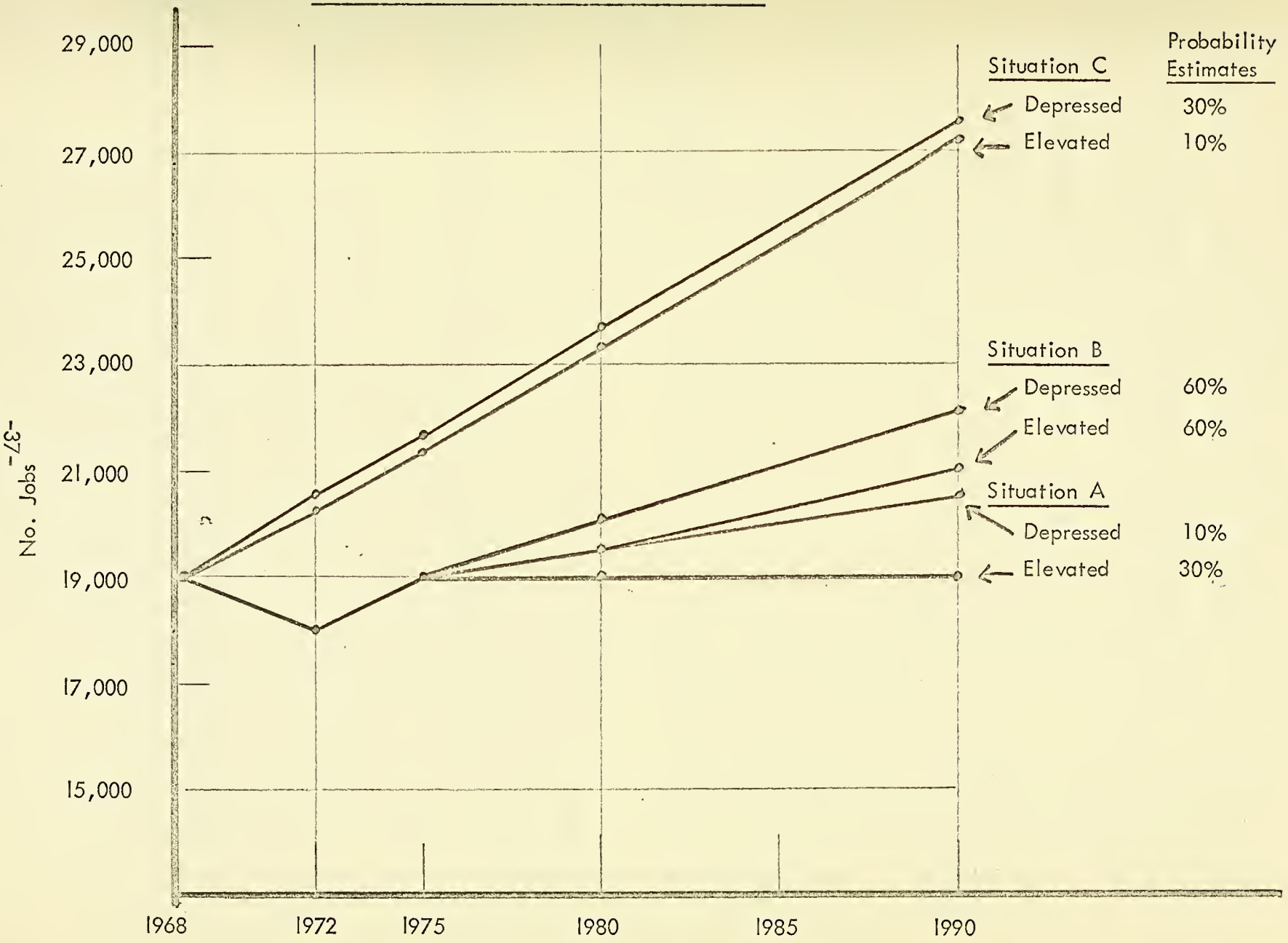
> The elevated and depressed differential impact ratios established earlier and reported in Tables 3 and 4 provided the basis for calculating the difference between population and employment projections for each situation. Specifically, the forecast level of each projection was established for the depressed section based on the study area prospect as described. The program effectiveness ratios were used to calculate the offset. The population impact ratio resulted in larger differences between depressed and elevated projections in contrast to the projections for employment.

In an earlier section probabilities were iterated for the elevated and depressed projections. These are now presented in the following two graphs that show population and employment projections.

Graph 1. POPULATION PROJECTIONS FOR DEPRESSED AND ELEVATED DESIGNS



Graph 2. EMPLOYMENT PROJECTIONS FOR DEPRESSED AND ELEVATED DESIGNS



Land Use Projections. Land use and employment attributes were also estimated for elevated and depressed corridor designs. These estimates include floor space for commercial and industrial use; the number of residential structures by type; household income distribution; and employment estimates by blue and white collar categories and by skilled, semi-skilled and unskilled categories. These programs are contained in the 6 tables that follow.

Elevated and depressed projections for Situation A are found in Tables 9 and 10. They follow basically the land use projections for Situation A presented earlier. The depressed projection requires more residential structures, more commercial space and more jobs than the corresponding elevated projection.

For Situation B, depressed projections show higher requirements as compared to the elevated projections (compare Tables 11 and 12). More residential structures are required, the same amount of commercial space, more industrial space, and higher employment levels.

The elevated and depressed projections for Situation C are presented in Tables 13 and 14. The projection for each land use and employment category is higher in every case for the depressed case as compared to elevated.

Table 9. SITUATION A, DEPRESSED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, DEPRESSED EXPRESSWAY AND TRANSIT LINE, SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990.

	1968	1972	1975	1980	1990
Population	80,000	78,800	77,200	74,700	72,200
Employment	19,000	18,000	19,000	19,500	20,500
Residential:			Number		
1-family structure	3,000	2,970	2,905	2,820	2,700
2-family structure	3,750	3,710	3,630	3,525	3,375
3-4-family structure	13,500	13,365	12,825	12,455	11,700
5+-family structure	4,750	4,750	4,750	4,750	4,750
Total	25,000	24,795	24,110	23,550	22,525
Household Income Distribution			Number		
0-5,000	11,500	11,375	11,125	10,810	10,350
5,000-10,000	9,660	9,555	9,345	9,080	8,695
10,000 & over	1,840	1,820	1,780	1,730	1,655
Total	23,000	22,750	22,250	21,620	20,700
Commercial:			Square Feet		
Retail Trade and Service	1,600,000	1,300,000	1,300,000	1,300,000	1,150,000
Cultural-Enterainment	100,000	80,000	80,000	80,000	75,000
Office	150,000	130,000	130,000	130,000	130,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,510,000	1,510,000	1,510,000	1,355,000
Industrial:			Square Feet		
Manufacturing	5,000,000	4,750,000	5,000,000	5,000,000	5,000,000
Wholesale-Distribution	1,000,000	850,000	1,000,000	1,000,000	1,000,000
Total	6,000,000	5,600,000	6,000,000	6,000,000	6,000,000
Employment:					
Blue Collar	13,300	12,600	13,300	14,030	14,350
White Collar	5,700	5,400	5,700	5,470	6,150
Total	19,000	18,000	19,000	19,500	20,500
Skilled	6,555	6,210	6,555	6,630	7,070
Semi-skilled	7,390	7,000	7,390	7,535	7,975
Unskilled	5,055	~~7~~,790	5,055	5,335	5,455
	19,000	~~21,000~~ 18,000	19,000	19,500	20,500

Table 10. SITUATION A, ELEVATED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, ELEVATED EXPRESSWAY AND TRANSIT LINE, SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990.

	1968	1972	1975	1980	1990
Population	80,000	76,400	74,900	72,400	69,900
Employment	19,000	18,000	19,000	19,000	19,000
Residential:			Number		
1-family structure	3,000	2,865	2,810	2,715	2,620
2-family structure	3,750	3,580	3,510	3,395	3,275
3-4-family structure	13,500	12,655	12,405	11,765	11,140
5+-family structure	4,750	4,750	4,750	4,750	4,750
Total	25,000	23,850	23,475	22,625	21,785
Household Income Distribution			Number		
0-5,000	11,500	10,983	10,767	10,408	10,050
5,000-10,000	9,660	9,225	9,045	8,742	8,442
10,000 & over	1,840	1,757	1,723	1,665	1,608
Total	23,000	21,965	21,535	20,815	20,100
Commercial:			Square Feet		
Retail Trade and Service	1,600,000	1,300,000	1,300,000	1,200,000	1,100,000
Cultural-Entertainment	100,000	80,000	80,000	75,000	70,000
Office	150,000	130,000	130,000	120,000	110,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,510,000	1,510,000	1,395,000	1,280,000
Industrial:			Square Feet		
Manufacturing	5,000,000	4,750,000	5,000,000	5,000,000	5,000,000
Wholesale-Distribution	1,000,000	700,000	1,000,000	1,000,000	1,000,000
Total	6,000,000	5,450,000	6,000,000	6,000,000	6,000,000
Employment:			Number		
Blue Collar	13,000	12,600	13,300	13,680	14,250
White Collar	5,000	5,400	5,700	5,320	4,750
Total	19,000	18,000	19,000	19,000	19,000
Skilled	6,555	6,210	6,555	6,460	6,315
Semi-skilled	7,390	7,000	7,390	7,340	7,270
Unskilled	5,055	4,790	5,055	5,200	5,415
	19,000	18,000	19,000	19,000	19,000

Table 11. SITUATION B, ELEVATED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, ELEVATED EXPRESSWAY AND TRANSIT LINE, SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990.

	1968	1972	1975	1980	1990
Population	80,000	79,200	78,600	77,600	76,600
Employment	19,000	18,000	19,000	19,500	21,000
Residential:			Number		
1-family structure	3,000	2,970	2,945	2,910	2,875
2-family structure	3,750	3,715	3,685	3,640	3,590
3-4-family structure	13,500	13,365	13,260	12,855	12,690
5+-family structure	4,760	4,760	4,760	4,760	4,760
Total	25,000	24,810	24,650	24,165	23,915
Household Income Distribution:			Number		
0-5,000	11,500	11,385	11,300	11,155	11,015
5,000-10,000	9,660	9,565	9,490	9,370	9,250
10,000 & over	1,840	1,820	1,810	1,785	1,760
Total	23,000	22,770	22,600	22,310	22,025
Commercial:			Square Feet		
Retail Trade and Service	1,600,000	1,300,000	1,300,000	1,300,000	1,300,000
Cultural-Entertainment	100,000	100,000	100,000	100,000	100,000
Office	150,000	150,000	150,000	150,000	150,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,550,000	1,550,000	1,550,000	1,550,000
Industrial:			Square Feet		
Manufacturing	5,000,000	4,750,000	5,000,000	5,100,000	5,250,000
Wholesale-Distribution	1,000,000	850,000	1,000,000	1,030,000	1,100,000
Total	6,000,000	5,600,000	6,000,000	6,130,000	6,350,000
Employment:			Number		
Blue Collar	13,300	12,600	13,300	13,650	14,700
White Collar	5,700	5,400	5,700	5,850	6,300
Total	19,000	18,000	19,000	19,500	21,000
Skilled	6,555	6,210	6,555	6,725	7,215
Semi-skilled	7,390	7,000	7,390	7,585	8,200
Unskilled	5,055	4,790	5,055	5,190	5,585
Total	19,000	18,000	19,000	19,500	21,000

Table 12. SITUATION B, DEPRESSED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, DEPRESSED EXPRESSWAY AND TRANSIT LINE SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990.

	1968	1972	1975	1980	1990
Population	80,000	80,000	80,000	80,000	80,000
Employment	19,000	18,000	19,000	20,000	22,000
Residential:	----------	----------	Number	----------	----------
1-family structure	3,000	3,000	3,000	3,000	3,000
2-family structure	3,750	3,750	3,750	3,750	3,750
3-4-family structure	13,500	13,500	13,500	13,500	13,500
5+-family structure	4,760	4,760	4,760	4,760	4,760
Total	25,000	25,000	25,000	25,000	25,000
Household Income Distribution:	----------	----------	Number	----------	----------
0-5,000	11,500	11,500	11,500	11,500	11,500
5,000-10,000	9,660	9,660	9,660	9,660	9,660
10,000 & over	1,840	1,840	1,840	1,840	1,840
Total	23,000	23,000	23,000	23,000	23,000
Commercial:	----------	----------	Square Feet	----------	----------
Retail Trade and Service	1,600,000	1,300,000	1,300,000	1,300,000	1,300,000
Cultural-Entertainment	100,000	100,000	100,000	100,000	100,000
Office	150,000	150,000	150,000	150,000	150,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,550,000	1,550,000	1,550,000	1,550,000
Industrial:	----------	----------	Square Feet	----------	----------
Manufacturing	5,000,000	4,750,000	5,000,000	5,200,000	5,400,000
Wholesale-Distribution	1,000,000	850,000	1,000,000	1,070,000	1,140,000
Total	6,000,000	5,600,000	6,000,000	6,270,000	6,540,000
Employment:	----------	----------	Number	----------	----------
Blue Collar	13,300	12,600	13,300	14,000	15,400
White Collar	5,700	5,400	5,700	6,000	6,600
Total	19,000	18,000	19,000	20,000	22,000
Skilled	6,555	6,210	6,555	6,900	7,590
Semi-skilled	7,390	7,000	7,390	7,780	8,560
Unskilled	5,055	4,790	5,055	5,320	5,850
Total	19,000	18,000	19,000	20,000	22,000

Table 13. SITUATION C, ELEVATED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, ELEVATED EXPRESSWAY AND TRANSIT LINE, SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990.

	1968	1972	1975	1980	1990
Population	80,000	80,200	82,900	85,000	89,000
Employment	19,000	20,300	21,500	23,370	27,230
Residential:			Number		
1-family structure	3,000	3,009	3,109	3,187	3,237
2-family structure	3,750	3,760	3,887	3,984	4,172
3-4-family structure	13,500	13,530	13,991	14,342	15,017
5+-family structure	4,750	4,761	4,923	5,047	5,384
Total	25,000	25,060	25,910	26,560	27,810
Household Income Distribution:			Number		
0-5,000	11,500	11,530	11,918	12,220	12,795
5,000-10,000	9,660	9,685	10,011	10,248	10,748
10,000 & over	1,840	1,845	1,906	1,952	2,047
Total	23,000	23,060	23,835	24,440	25,590
Commercial:			Square Feet		
Retail Trade and Service	1,600,000	1,600,000	1,600,000	1,650,000	1,750,000
Cultural-Entertainment	100,000	100,000	100,000	110,000	120,000
Office	150,000	150,000	250,000	350,000	650,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,850,000	1,950,000	2,110,000	2,520,000
Industrial:			Square Feet		
Manufacturing	5,000,000	5,400,000	5,600,000	5,800,000	6,400,000
Wholesale-Distribution	1,000,000	1,100,000	1,100,000	1,150,000	1,200,000
Total	6,000,000	6,500,000	6,700,000	6,950,000	7,600,000
Employment:			Number		
Blue Collar	13,300	14,210	14,835	15,660	17,700
White Collar	5,700	6,090	6,665	7,710	9,530
Total	19,000	20,300	21,500	23,370	27,230
Skilled	6,555	7,005	7,470	8,240	9,735
Semi-skilled	7,390	7,895	8,390	9,180	10,770
Unskilled	5,055	5,400	5,640	5,950	6,725
Total	19,000	20,300	21,500	23,370	27,230

Table 14. SITUATION C, DEPRESSED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, DEPRESSED EXPRESSWAY AND TRANSIT LINE, SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990.

	1968	1972	1975	1980	1990
Population	80,000	81,000	83,500	86,000	91,000
Employment	19,000	20,500	21,700	23,600	27,500
Residential:			Number		
1-family structure	3,000	3,032	3,126	3,220	3,407
2-family structure	3,750	3,790	3,908	4,025	4,259
3-4-family structure	13,500	13,646	14,067	14,488	15,330
5+-family structure	4,750	4,802	4,949	5,097	5,394
Total	25,000	25,270	26,050	26,830	28,390
Household Income Distribution:			Number		
0-5,000	11,500	11,625	11,740	11,600	11,754
5,000-10,000	9,660	9,765	10,303	10,859	11,754
10,000 & over	1,840	1,860	1,917	2,221	2,612
Total	23,000	23,250	23,960	24,680	26,120
Commercial:			Square Feet		
Retail Trade and Service	1,600,000	1,600,000	1,600,000	1,700,000	1,800,000
Cultural-Entertainment	100,000	100,000	100,000	110,000	125,000
Office	150,000	150,000	250,000	400,000	750,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,850,000	1,950,000	2,210,000	2,675,000
Industrial:			Square Feet		
Manufacturing	5,000,000	5,400,000	5,600,000	5,900,000	6,700,000
Wholesale-Distribution	1,000,000	1,100,000	1,100,000	1,200,000	1,300,000
Total	6,000,000	6,500,000	6,700,000	7,100,000	8,000,000
Employment:			Number		
Blue Collar	13,300	14,350	14,970	15,810	17,875
White Collar	5,700	6,150	6,730	7,790	9,625
Total	19,000	20,500	21,700	23,600	27,500
Skilled	6,555	7,070	7,540	8,320	9,830
Semi-skilled	7,390	7,975	8,470	9,275	10,875
Unskilled	5,055	5,455	5,690	6,005	6,795
Total	19,000	20,500	21,700	23,600	27,500

Reference List for Development Factors

A Policy on Arterial Highways in Urban Areas by American Association of State Highway Officials, published by the Association, Washington, D. C, 1957. This comprehensive book discusses many aspects of highway design and includes chapters on at-grade expressways, depressed freeways, elevated freeways and combination-type arterial highways.

The Freeway in the City, a Report to the Secretary, Department of Transportation by the Urban Advisors to the Federal Highway Administrator, U. S. Government Printing Office, Washington, D. C., 1968. This reference contains chapters on highway structures and the multiple use of the corridor.

Freeways by Lawrence Halpren, Reinhold Publishing Company, 1966 -- This book contains a chapter titled "Evaluation of Freeway Types".

Urban Design Determinants in Seattle and New York by Rai Ikamoto in Journal of the Franklin Institute, Vol. 286, No. 5, November 1968.

Vieux Carre Historic District Demonstration Study, Summary Report, Evaluation of the Effects of the Proposed River Front Expressway by the Bureau of Governmental Research, New Orleans, Louisiana, 1968. This reference contains extensive sections titled "Analysis of Expressway Effects" and "Evaluation of Expressway Effects on Historic Preservation Objectives".

"The Effects of a Depressed Expressway -- a Detroit Case Study" by Richard De La Barre Duke in Appraisal Journal, October 1958.

"Proposed Cantilever Freeway Structures Save Space, Kill Sound, Simplify Design" by N. Chester Sorensen in Southwest Builder and Contractor, January 14, 1955.

"Traffic Arteries of a Large City -- the Relative Merits of Surface, Elevated or Subway Types" by H. Criswell in Roads and Road Construction, March and April 1944.

Feasibility Report for Low Level Expressway I-310 by Rader and Associates for the State of Louisiana Department of Highways, October 1968. This extensive report contains a chapter "Discussion of Alternate Schemes" which includes elevated scheme, protected elevated scheme, surface scheme, rolling scheme and depressed scheme.

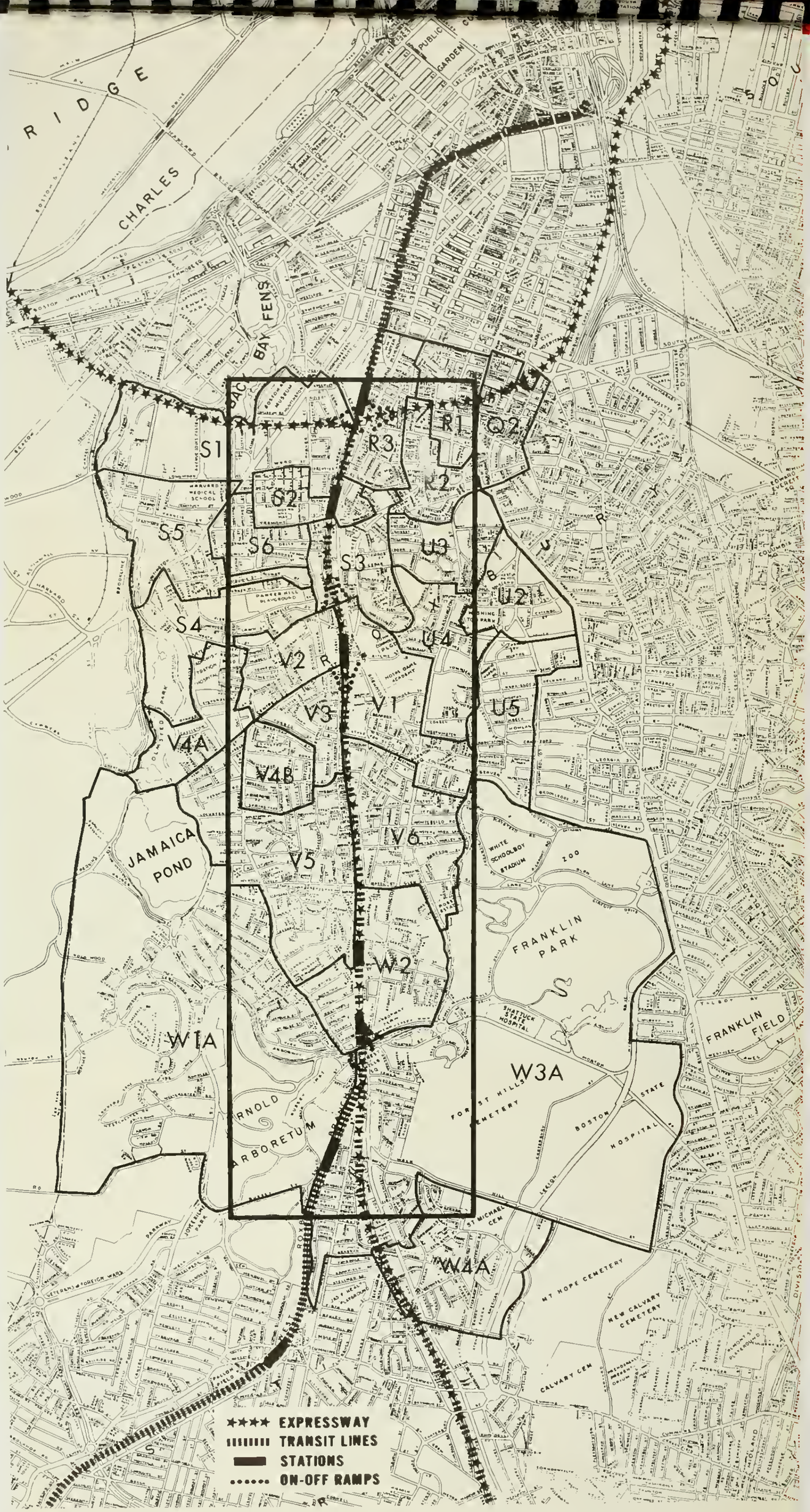
Study and Report East-West Freeway, F.A.I. 105, East Orange, New Jersey by Harry A. Taylor and Associates for the Mayor and City Council, City of East Orange, New Jersey, 1959.

Joint Project Concept -- Integrated Transportation Corridors prepared for the U. S. Department of Housing and Urban Development by Barton -- Aschman Associates, Chicago, Illinois, 1968.

A Report on the Status of Multiple Use and Joint Development prepared by Environmental Development Division, Office of Right-of-Way and Location, Bureau of Public Roads -- U. S. Department of Transportation, 1968.

APPENDIX

BACKGROUND MATERIAL



MAP 5 - CENSUS TRACTS IN SOUTHWEST STUDY AREA

Table I-1 POPULATION FOR BOSTON METRO AND CITY, 1960-1967

Year	Metro	City 1/
	----------Thousands----------	
1960	3,109.2	791.3
1967	3,249.8	703.9
Change	+140.6	-87.4
% Change	4.5%	-11.0%

Source: Population Estimates, U.S. Department of Commerce. 1968

1/ Suffolk County

Table I -2 EMPLOYMENT FOR BOSTON, SMSA 1960-1967
BY MAJOR INDUSTRIES

(employees in thousands)

Major Industries	1960	1961	1962	1963	1964	1965	1966	1967
Construction	46.8	45.5	47.2	48.4	50.2	50.5	50.3	51.1
Manufacturing	303.8	298.9	294.0	284.6	275.5	284.1	299.4	304.6
Transportation & Public Utilities	68.0	65.9	65.7	66.0	65.9	66.6	67.4	69.6
Wholesale & Retail Trade	240.9	243.5	245.2	244.6	249.1	255.7	265.4	268.1
Finance, Insurance & Real Estate	73.5	75.2	75.9	76.7	77.6	78.8	81.1	83.3
Services & Mining	201.2	211.1	220.0	227.5	233.8	247.7	263.4	279.1
Government	140.6	141.6	144.3	150.5	153.8	156.9	161.0	166.1
Total	1,074.8	1,081.7	1,092.3	1,098.3	1,105.9	1,140.3	1,188.0	1,221.9

Source: Employment and Earnings Statistics - 1968, Bureau of Labor Statistics

Table I-3. EMPLOYEES BY RESIDENCE AND INDUSTRY IN THE STUDY AREA (CENSUS TRACT AND THE CITY OF BOSTON, 1960

	Study Area		City of Boston	
	Number	%	Number	%
Total Employment	45,035	100%	288,246	100%
Manufacturing and Construction	12,295	27	82,821	28
Transportation	1,864	4	24,504	11
Services	15,679	35		22
Professional	7, 47	16	62,373	24
Other	8,150	18	43,692	15

Source: Census of Population, 1960

Table I-4 EMPLOYEES BY RESIDENCE AND INDUSTRY IN THE STUDY AREA (CENSUS TRACT) OF THE CITY OF BOSTON, 1960

	Study Area		City of Boston	
	Number	%	Number	%
Total Employment	45,035	100%	288,246	100%
Manufacturing and Construction	12,295	27	82,821	28
Transportation	1,864	4	24,504	11
Services	15,697	35	64,856	22
Professional	7,047	16	62,373	24
Other	8,150	18	43,692	15

Source: Census of Population, 1960

Table I-5 . EMPLOYMENT BY INDUSTRY FOR THE CITY OF BOSTON

	1950	1960	1963
Construction	19,724	16,851	17,035
Manufacturing	101,279	87,309	79,770
Transportation, Communication and Utilities	47,656	39,025	35,715
Wholesale and Retail	135,915	122,155	116,144
Finance, Insurance and Real Estate	32,508	53,526	56,704
Services and Mining	61,704	75,892	78,383
Government	85,307	95,673	95,718
Total	484,093	490,431	479,469

Source: Department of Employment Security

TABLE I-6. EMPLOYMENT BY INDUSTRY IN THE PRIMARY AND SECONDARY SUB AREAS OF THE STUDY AREA, 1963*

	Primary	Secondary	Pri. + Sec.	Proporation of City Primary	Secondary	Pri. + Sec.
Construction	787	561	1,348	4.6%	3.2%	7.8%
Manufacturing	5,262	5,197	10,459	6.5%	6.5%	13.0%
Transportation, Communications & Utilities	980	2,622	3,602	2.7%	7.3%	10.0%
Wholesale & Retail	2,107	8,462	10,569	1.8%	7.2%	9.0%
Finance, Insurance & Real Estate	51	641	692	.1%	1.1%	1.2%
Services	13,471	5,351	18,822	17.1%	6.8%	23.9%
Government	1,166	694	1,860	1.2%	.7%	1.9%
Total	23,824	23,528	47,352	4.9%	4.9%	9.8%

Source: Department of Employment Security

* See Map 4 for definition of Primary and Secondary areas.

TABLE I-7. NUMBER EMPLOYED AND NUMBER OF ESTABLISHMENTS SOUTHWEST CORRIDOR STUDY AREA, 1968

	No. of Firms	No. of Employees
MANUFACTURING		
Food and Related	13	344
Textile and Apparel	28	4,350
Wood, Stone, Clay & Glass Products	25	1,120
Natural Chemical & Synthetic Products	27	860
Metals, Machinery & Instruments	55	2,920
Total	142	9,594
NON-MANUFACTURING		
Trucking	15	NA
Warehousing	10	NA
Contractors	20	NA
Utilities, Fuel & Transportation	4	NA
Total	49	NA
Grand Total	191	

Source: BRA Material

Table I -8 FAMILY INCOME DISTRIBUTION FOR CENSUS TRACTS IN THE STUDY AREA AND FOR THE CITY OF BOSTON, 1960

Income Categories	Study Area		City	
	Number of Families	Percent Distribution	Number of Families	Percent Distribution
Under $1,000	1,256	4.7%	5,698	3.5
$1,000-1,999	2,072	7.7	9,432	5.7
$2,000-2,999	2,462	9.2	12,229	7.4
$3,000-3,999	3,029	11.4	16,256	9.9
$4,000-4,999	3,340	12.5	20,331	12.4
$5,000-5,999	3,623	13.6	24,306	14.8
$6,000-6,999	2,856	10.7	19,053	11.6
$7,000-7,999	2,128	8.0	15,080	9.2
$8,000-8,999	1,664	6.2	11,387	6.9
$9,000-9,999	1,081	4.0	8,129	5.0
$10,000-14,000	2,465	9.2	16,869	10.3
$15,000-24,999	642	2.5	4,428	2.7
$25,000 & over	82	.3	1,017	.6
Total	26,699	100.0%	164,215	100.0%

Median Income:
Study Area - $5,330
City of Boston $5,747

Source: Census of Population, 1960

Table I -9 POPULATION IN THE PRIMARY AND SECONDARY SUB-AREAS OF THE STUDY AREA, 1963

Traffic Zones	Population
A. Primary:	
91	6,587
98	8,297
99	1,647
100	7,178
101	16,264
102	16,074
103	8,264
104	4,064
110	8,619
111	2,792
115	19,509
Total Primary	99,295
B. Secondary:	
77	47
90	6,063
92	1,094
105	12,031
106	15,420
108	5,162
109	705
112	924
113	6,439
114	10,226
116	8,762
Total Secondary	66,783
Total Study Area	166,078

Source: Origin & Destination Report - Department of Public Works

TABLE I-10. CHARACTERISTICS OF FAMILIES IN RIGHT-OF-WAY, SOUTHWEST CORRIDOR PROJECT, 1968

	Number	% of Total Families
RACE:		
White	137	37.6%
Negro	36	9.9
Puerto Rican	191	52.5
Total	364	100.0%
HOME OWNERSHIP		
Tenant	33	9.1%
Owner	331	90.9
Total	364	100.0%
UNEMPLOYED	27	7.4%
ON WELFARE	45	12.4%
NEED PUBLIC HOUSING	114	31.3%
NO. OF FAMILIES	268	73.6%
NO. OF INDIVIDUALS	96	26.4%

Source: Sample from BRA Relocation Center, Vernon. An estimated 700 families have been and will be replaced based on data from DPW, February 1969.

$$\text{Impact Index} = \frac{700}{25,000} = 2.4\%$$

TABLE I-11 COMMERCIAL CENTERS IN THE SOUTHWEST CORRIDOR STUDY AREA

Number	Location	No. of Stores	Approx. Size (sq. ft.)
*1	Tremont and Ruggles	45	45,000
2	Huntington and Longwood	17	17,000
*3	Tremont and Columbus (Roxbury Crossing)	99	107,000
4	Roxbury and Centre	20	20,000
*5	Centre and Columbus (Jackson Square)	44	44,000
6	Washington and Marcella	44	44,000
7	Centre and Bickford	22	25,000
8	Centre and Perkins	79	79,000
9	Washington and Columbus (Egleston Square)	80	97,000
10	Centre and Boylston	38	44,000
*11	Boylston and Lamartine	37	37,000
12	Green and Washington	49	52,000
13	Centre and Burroughs (J. P. Center)	131	132,000
14	Washington and Willians	17	18,000
15	South and Hall	48	48,000
*16	Washington and Hyde Park Avenue (Forest Hills)	44	65,000
17	Hyde Park Avenue and Eldridge	12	12,000
18	Washington and Archdale	27	27,000
19	Washington and Dudley (Dudley Station)	534	700,000
	Total	1,387	1,613,000
	Right of Way total	269	298,000
	Balance	1,118	1,315,000

Source: Boston Globe Study (1962)

Average Size = 1,200 square feet per store

* - Within Right-of-Way

Table I-12 COMMERCIAL CENTERS BY TYPE OF STORE, SOUTHWEST CORRIDOR STUDY AREA.

Map 20-Location	Number of Stores				Approximate Size (Sq.Ft.)
	Commerical Goods	Shopping Goods	Services	Total	
1. Tremont & Ruggles	14	8	23	45	45,000
2. Huntington & Longwood	6	5	6	17	17,000
3. Tremont & Columbus (Roxbury Crossing)	29	37	33	99	107,000
4. Roxbury & Centre	9	3	8	20	20,000
5. Centre & Columbus (Jackson Square)	15	14	15	44	44,000
6. Washington & Marcella	24	7	13	44	44,000
7. Centre & Bickford	8	6	8	22	25,000
8. Centre & Perkins	23	21	33	79	79,000
9. Washington & Columbus (Egleston Square)	25	23	32	80	97,000
10. Centre & Boylston	14	5	19	38	44,000
11. Boylston & Lamartine	10	5	22	37	37,000
12. Green & Washington	17	12	20	49	52,000
13. Centre & Burroughs (J.P. Center)	33	45	53	131	132,000
14. Washington & Williams	7	5	5	17	18,000
15. South & Hall	20	8	20	48	48,000
16. Washington & Hyde Park Ave. (Forest Hills)	12	12	20	44	65,000
17. Hyde Park Ave & Eldridge	6	0	6	12	12,000
18. Washington & Archdale	14	2	11	27	27,000
19. Washington & Dudley (Dudley Station)	136	195	203	534	700,000
Total	424	413	550	1,387	1,613,000

TABLE I-13 COMMERCIAL AND INDUSTRIAL ESTABLISHMENTS IN THE STUDY AREA RIGHT-OF-WAY, 1963

	Number of Establishments	Number of Employees	Square Feet of Building Space
Manufacturing	27	547	234,950
Retail-Services	104	682	395,250
Automotive	40	165	77,500
Wholesale-Warehouse	32	247	271,100
Contracting	4	23	11,200
Total	207	1,664 [1/]	990,000

Source: Materials from BRA

$$\text{Impact Index} = \frac{1,664}{19,000} = 8.7\%$$

TABLE I -14 COMMERCIAL & INDUSTRIAL ESTABLISHMENTS IN RIGHT-OF-WAY OF SOUTHWEST CORRIDOR STUDY AREA BY LOCATION, 1963

	Number of Establishments	Number of Employees	Sq. Ft. of Building Space
ROXBURY CROSSING			
Manufacturing	19	277	116,750
Retail-Services	59	326	245,050
Automotive	15	42	26,900
Wholesale-Warehouse	22	184	157,100
Contracting	2	13	8,200
Total	117	842	454,000
JACKSON SQUARE			
Manufacturing	6	85	61,800
Retail-Services	26	234	76,700
Automotive	7	23	11,800
Wholesale-Warehouse	2	11	20,200
Contracting	1	10	3,000
Total	42	363	173,500
JAMAICA PLAIN			
Manufacturing	---	---	-------
Retail-Service	4	23	17,400
Automotive	5	30	7,900
Wholesale-Warehouse	3	10	10,000
Contracting	1	NA	NA
Total	13	63	35,300
FOREST HILLS			
Manufacturing	2	185	56,400
Retail-Services	9	88	47,500
Automotive	10	42	16,100
Wholesale-Warehouse	5	42	83,800
Contracting	---	---	-------
Total	26	357	203,800

TABLE A-14 Continued

ROSLENDALE			
Manufacturing	---	---	-------
Retail-Services	6	11	8,600
Automotive	3	28	14,800
Wholesale-Warehouse	---	---	-------
Contracting	---	---	-------
Total	9	39	23,400
Grand Total	207	1,664	990,000

Source: BRA Materials

Table 1-15 DWELLING UNITS BY TYPE

FOR THE STUDY AREA, 1968 1/

	Number of Dwelling Units	Percent Distribution
1 Family Units	3,080	12%
2 Family Units	3,740	15%
3-4 Family Units	13,420	54%
5+ Family Units 2/	1,260	19%
Public Housing	3,500	
Total	25,000	100%

1/ 10% Vacancy Rate
2/ Excluding Public Housing

Proposed "infill" Program-102 units started 1969.

Existing 221 D-3	938 units
Proposed 221 D-3	833 units
Total 221 D-3	1,771 units

Source: BRA Materials

TABLE I-16. AGE OF RESIDENTIAL STRUCTURES IN CENSUS TRACTS OF STUDY AREA

Census Tract	1950-1960	1940-1949	1939 or earlier	Total Structures
Q2	---	362	649	1,011
R1	25	366	1,556	1,947
R2	---	15	781	796
R3	175	4	818	997
S1	526	84	1,293	1,903
S2	4	799	438	1,241
S3	---	3	1,252	1,255
S4	23	4	1,038	1,065
S5	3	13	1,742	1,758
S6	---	---	1,280	1,280
U2	3	16	1,458	1,477
U3	---	---	1,228	1,228
U4	10	14	1,471	1,495
U5	26	---	2,327	2,353
V1	9	---	1,351	1,360
V2	643	49	1,056	1,748
V3	---	---	989	989
V4A	20	7	658	685
V4B	---	---	1,067	1,067
V5	18	32	2,368	2,418
V6	16	---	1,936	1,952
W1A	357	101	1,760	2,218
W2	11	24	1,277	1,312
W3A	413	32	1,745	2,190
W4A	64	70	595	729
Total	2,346	1,995	32,133	36,474

Source: Census of Housing, 1960

TABLE I-17. CONDITION OF HOUSES IN CENSUS TRACT OF STUDY AREA, 1960

Census Tract	Sound			Deteriorating			Dilapidated
	with all Plumbing	Lacking Hot Water	Lacking Other Plumbing	with all Plumbing	Lacking Hot Water	Lacking Other Plumbing	
Q2	514	4	23	247	24	34	165
R1	673	111	17	637	140	23	346
R2	243	10	5	236	36	18	254
R3	266	33	6	190	110	14	378
S1	1,847	5	22	15	6	---	8
S2	900	3	2	224	10	13	89
S3	419	49	9	416	124	28	210
S4	490	12	16	430	35	8	74
S5	1,603	10	6	108	11	1	19
S6	774	17	33	233	9	4	210
U2	562	17	32	696	16	41	218
U3	797	41	17	369	41	28	184
U4	401	4	15	631	28	37	112
U5	594	1	12	699	5	9	175
V1	969	14	21	239	11	28	78
V2	1,584	2	8	143	1	2	8
V3	463	9	6	363	12	6	130
V4A	623	---	1	57	1	---	3
V4B	878	2	6	175	3	3	---
V5	2,135	36	35	107	10	14	81
V6	1,170	6	20	526	8	19	203
W1A	2,075	3	9	116	7	2	1
W2	652	---	---	419	3	1	237
W3A	1,939	21	23	163	7	2	40
W4A	642	---	5	76	---	5	1
Total	23,213	410	349	7,515	658	340	3,224

Source: Census of Housing, 1960

Table 1-18. EXISTING AND PROPOSED PUBLIC HOUSING IN AND NEAR THE SOUTHWEST CORRIDOR STUDY AREA, 1968

	Name of Project	Family Units	Elderly Units	Date Occupied	District
A. Existing:					
21	Heath Street	420	0	Feb.1942	Jamaica Plain
22	Bromley Park	732	0	June, 1954	Jamaica Plain
23	Bickford Street	0	64	Sept, 1962	Jamaica Plain
24	Jamaica Pond	0	44	Sept, 1962	Jamaica Plain
25	South Street	132	0	Aug, 1953	Jamaica Plain
27	Mission Hill	1023	0	Dec, 1940	Parker Hill-Fenway
28	Mission Hill Ext.	588	0	Aug, 1952	Parker Hill-Fenway
31	Archdale	288	0	Oct, 1951	Roslindale
*32	Orchard Park	774	0	Nov, 1942	Roxbury, N. Dorchester
33	Whittier Street	200	0	May, 1953	Roxbury, N. Dorchester
*44	Lenox Street	306	0	Dec, 1940	South End
*51	Camden Street	72	0	Oct, 1949	South End
	Total	4,535	108		
B. Proposed:					
30	Forest Hills	0	140		Roslindale
35	Highland Park	43	0		Roxbury N. Dorchester
37	Walnut Park	0	168		Roxbury, N. Corchester
	Total	43	308		
	TOTAL	4,578	416		

* Projects just outside the Study area.

Source: BRA Material

Table I.-19. MIDDLE INCOME HOUSING (221D-3) EXISTING & PROPOSED IN AND NEAR THE SOUTHWEST CORRIDOR STUDY AREA, 1968.

	Map Key	Name of Development	Dwelling Units	Project Area
A. Existing				
	6	Academy Homes II	316	Washington Park
	8	Charlame Park II	38	Washington Park
	9	Westminister Court	70	Washington Park
	11	Warren Gardens	228	Washington Park
	A	Forest Hills	108	Jamaica Plain
	*D	Florence Apts	138	Roslindale
	J	Cedar St Co-op	40	Roxbury-No. Dorchester
Subtotal			938	
B. Proposed				
	10	Site C-5	140	Washington Park
	*21	Site 21	63	South End
	*22	Site 22	160	South End
	*23	Site 23	135	South End
	*24	Site 24	135	South End
	*25	Site 16	200	South End
Subtotal			833	
Total			1,771	

* Near the study area.

Source: BRA Materials

Table I-20. "INFILL" HOUSING TO BE CONSTRUCTED IN 1969 IN THE SOUTHWEST CORRIDOR STUDY AREA. 1/

	Size of Parcel (Sq. Ft.)	Number of Dwelling Units
A. Parker Hill Area		
	7,103	8
	16,361	8
	11,602	6
	25,749	14
	6,520	4
	4,657	4
	2,801	2
Subtotal	74,793	46
B. Jamaica Plain Area		
	2,990	4
	4,952	4
	2,976	2
	7,347	6
	15,625	14
	5,891	4
	2,610	4
	3,600	2
Subtotal	45,991	40
C. Roslindale Area		
	3,780	4
	3,784	4
	3,500	4
	3,960	2
	1,445	2
Subtotal	16,469	16
Total	137,253	102

Source: BRA Material

1/ In addition 26 units will be constructed on 3 sites in Model City area and 52 units on 2 sites in Washington Park Renewal Area.

Table I-21

PROGRAMMED PUBLIC FACILITIES IN THE SOUTHWEST CORRIDOR STUDY AREA.

Map Key	Project and Address	Comments
1	Bussey Institute- Forest Hills area, Arnold Arboretum	Site contains about 20 acres. Will be a vocational high school and a technical institute.
2	Heath Street School- Heath and Day	Site-4.7 acres adjacent to 4.5 acre public playground. A replacement for Jefferson and Bulfinch schools-open Fall, 1971
3	Campus High School - Near Vernon and Shawmut	Site contains 35 acres - will include some new housing - open Fall, 1972 or 1973.
4	Theodore Roosevelt School near Egleston Square	In process.
5,6	Agassing/Ellis Mendel Districts (5) Brookside and Cornwall (6) Near South and St. Joseph Streets	In process.
7	Mary Curley addition near Pershing Road and Centre Street	Site size not different, will use city owned land in rear of Curley School

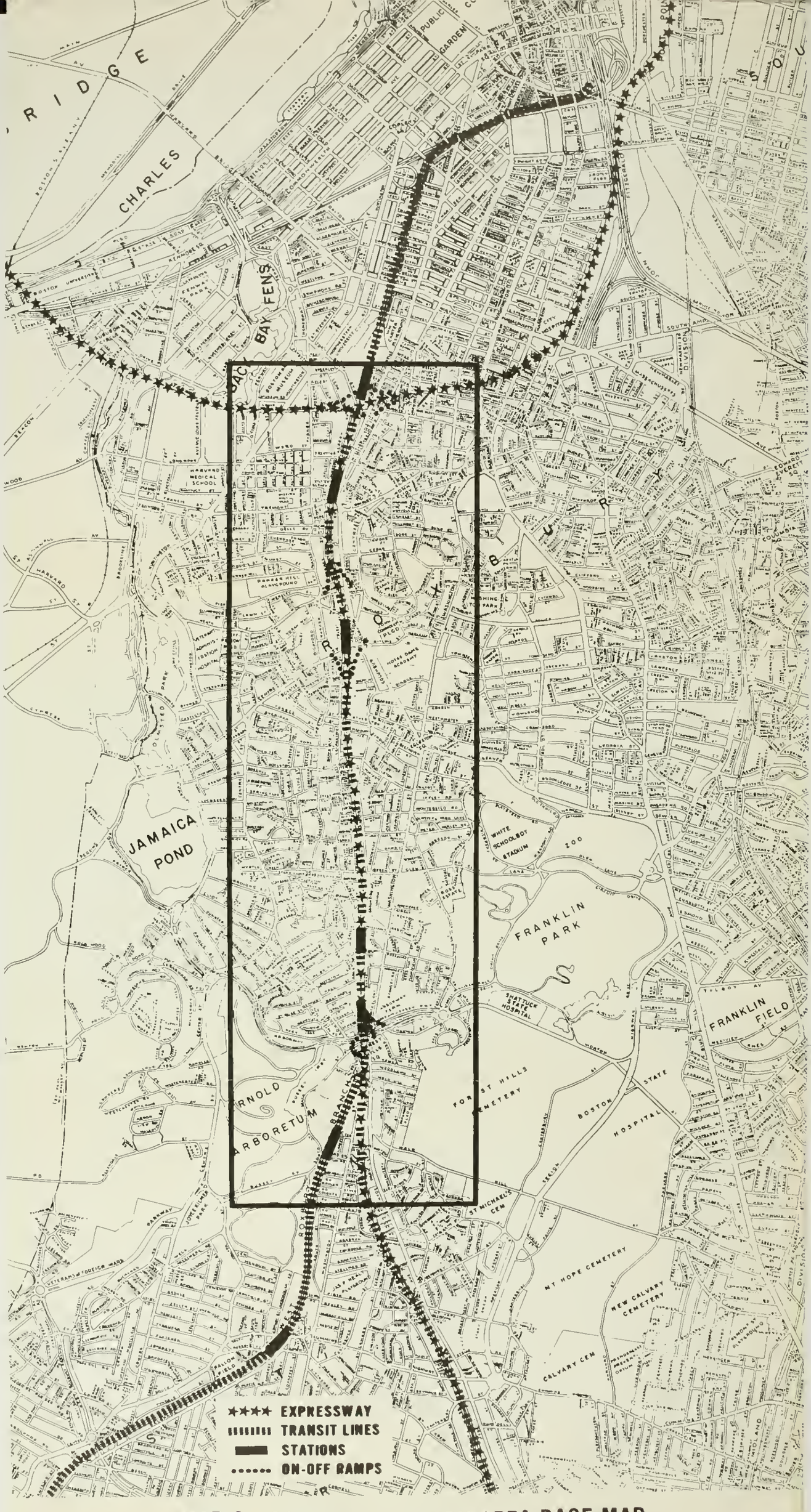
Table I-22 EXISTING PUBLIC FACILITIES IN THE SOUTHWEST CORRIDOR STUDY AREA

PUBLIC COMMUNITY FACILITIES

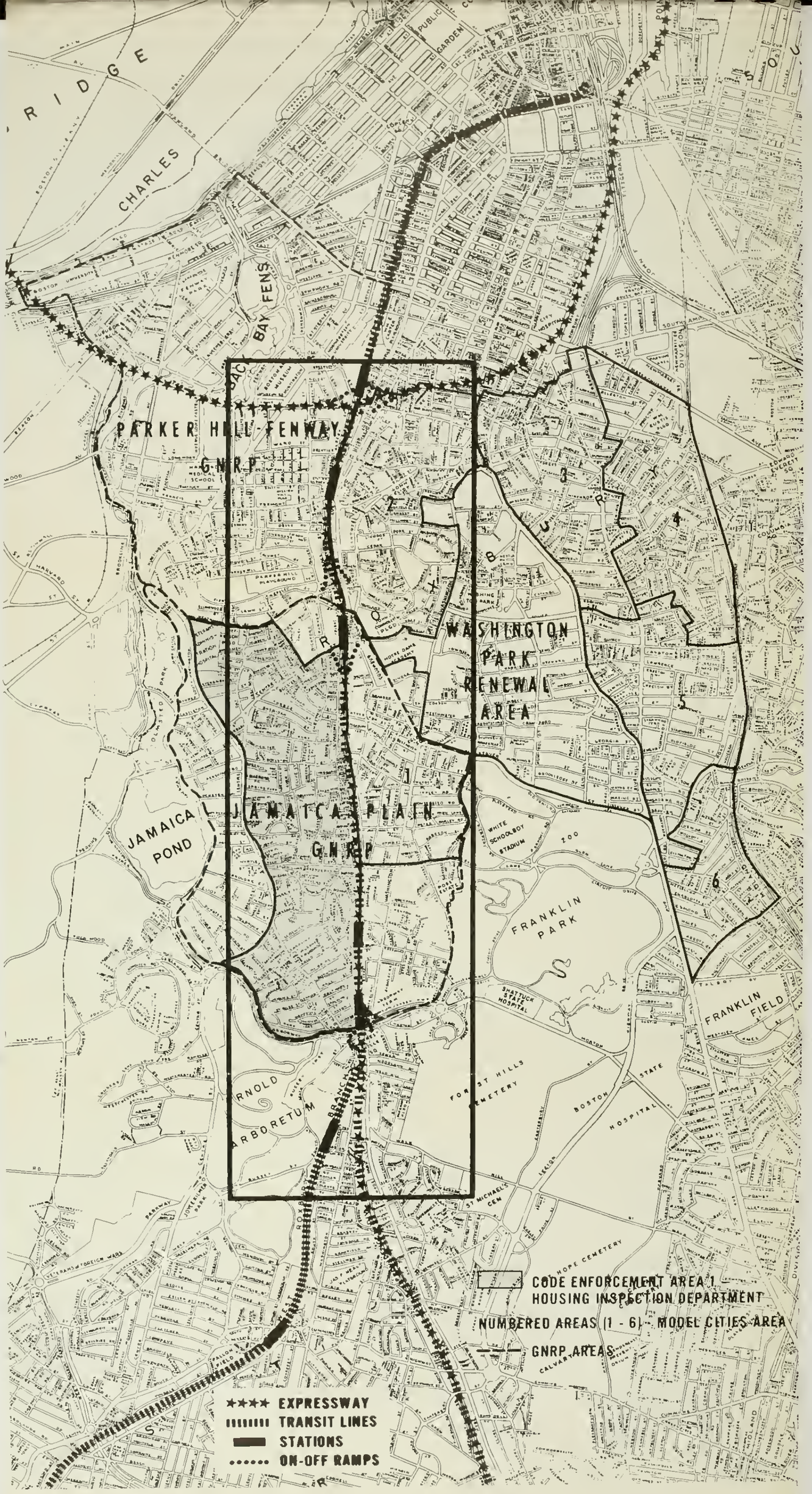
Map Key	Name of Facility	Address
Libraries		
L-1	Parker Hill Library	1497 Tremont Street
L-2	Connolly Library (J.P.)	433 Centre Street
L-3	Egleston Square	2044 Columbus Avenue
L-4	Jamaica Plain Library	12 Sedgwick Street
Fire Stations		
F-1	Huntington Avenue Fire Station	560 Huntington Avenue
F-2	Roxbury Centre Street Station	27 Centre Street
F-3	Roxbury Bragdon Street Station	1870 Columbus Avenue
F-4	Jamaica Plain Ladder Co. 10	659 Centre Street
Police Stations		
P-1	Roxbury Police Station 10	1170 Columbus Avenue
P-2	Jamaica Plain Station 13	28 Seaverns Street
Courts		
Ch-1	Roxbury Municipal Court	88 Roxbury Street
Ch-2	West Roxbury District Court	445 Arborway
Welfare		
W-1	Welfare Clinic	1491 Tremont Street
Municipal Buildings		
M-1	Tobin Municipal Building	1491 Tremont Street
M-2	Curtis Hall Municipal Building	20 South Street
Post Offices		
PO-1		Roxbury Street
PO-2		Tremont Street
PO-3		Centre Street
Public Works		
PW-1	Garage, Paving Service Yard, Sanitary Division Yard	280 Highland Street
MDC-1	Sewage Pumping Station	Vancouver-Ward Streets

Table I-22 Cont'd

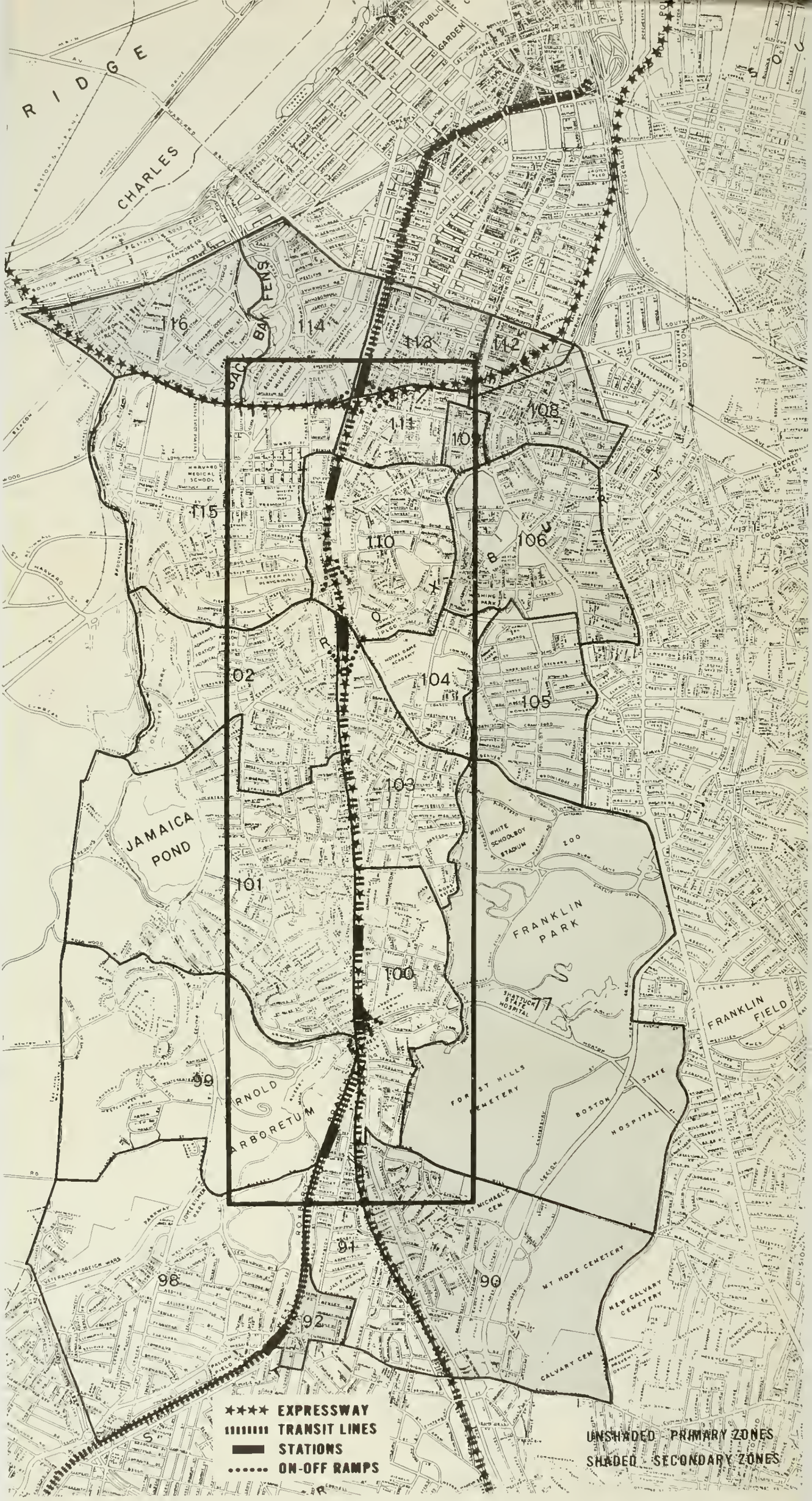
Map Key	Name of Facility	Address
Health		
H-1	Health Clinic	120 Whittier Street
H-2	Health Clinic	20 South Street
H-3	Bussey Institute	South Street
Public Bath		
PB-1	Cabot Street Public Bath (Will be demolished in Campus High project)	Downing Street



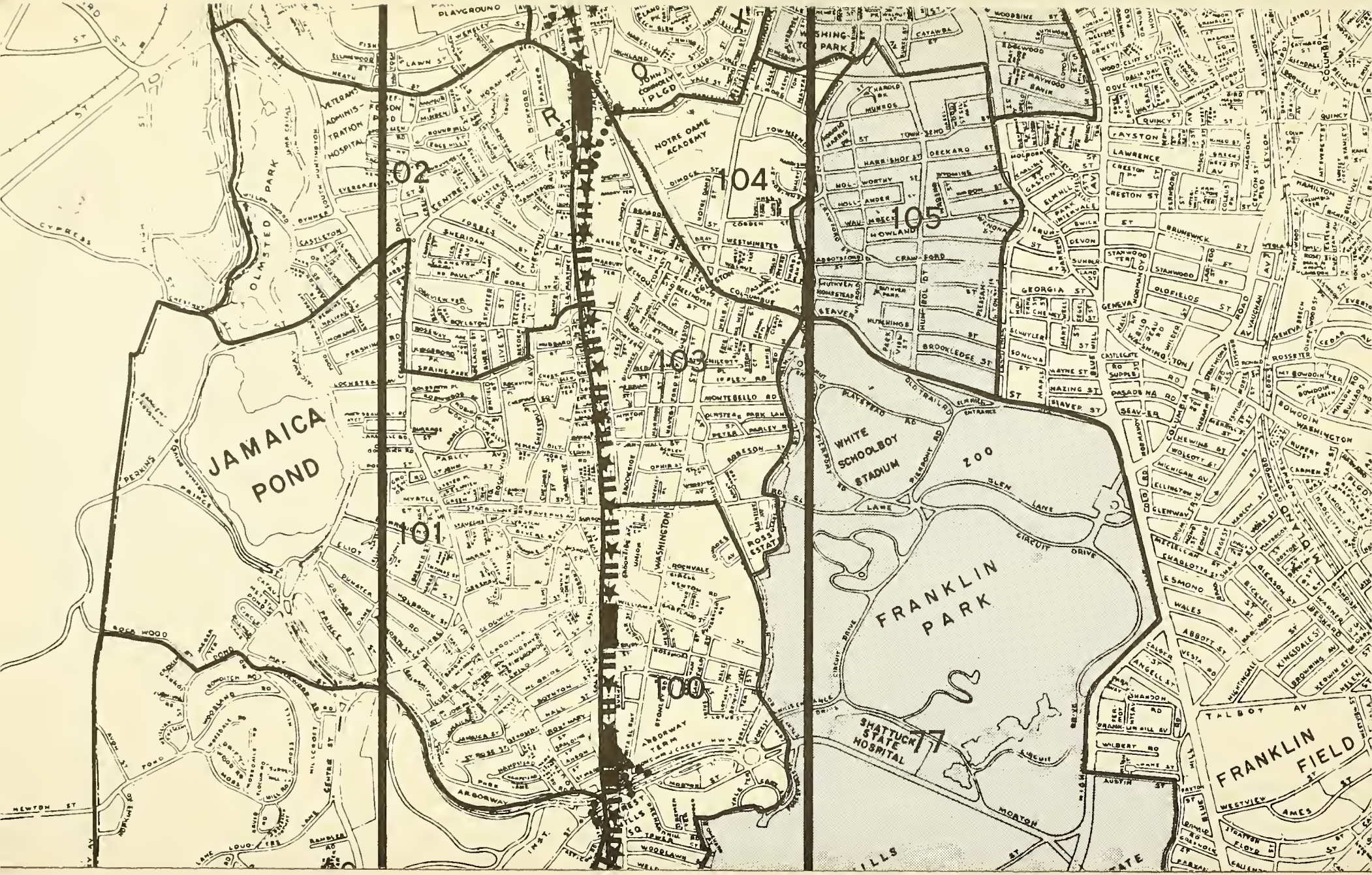
MAP 2 - SOUTHWEST STUDY AREA BASE MAP



MAP 3 - PROGRAM AREAS IN SOUTHWEST STUDY AREA



MAP 4 - TRAFFIC ZONES IN SOUTHWEST STUDY AREA


JAMAICA POND
FRANKLIN PARK
FRANKLIN FIELD
WHITE SCHOOLBOY STADIUM
ZOO
SHATTUCK STATE HOSPITAL
OLMSTED PARK
VETERANS ADMINISTRATION HOSPITAL
NOTRE DAME ACADEMY
JOHN J CONNOLLY PLGD
ROSS ESTATE
101
102
103
104
105
106

ML2
G1 Gladstone, Robert & Assoc.

The Southwest Corridor Study Area
Development Prospects.

DATE | ISSUED TO